OPERATING INSTRUCTIONS

DLA-M4000LU D-ILA SUPER PROJECTOR

JVC

D-ILA™ SUPER PROJECTOR

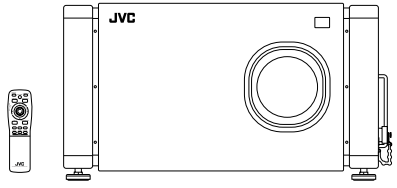
DLA-M4000LU

INSTRUCTIONS

For customer Use:
Enter below the Serial No. which is located on the side panel of the cabinet. Retain this information for future reference.

Model No. DLA-M4000LU

Serial No.



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No.51666

DLA-M4000LU
DLA-M4000LE

Thank you for purchasing this projector. Before using it, read and follow all instructions carefully to take full advantage of the projector's capabilities.

SAFETY PRECAUTIONS

IMPORTANT INFORMATION

WARNING :

TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

CAUTION :

To reduce the risk of electric shock, do not remove cover. Refer servicing to qualified service personnel.

This projector is equipped with a 3-blade grounding-type plug to satisfy FCC rule. If you are unable to insert the plug into the outlet, contact your electrician.

FCC INFORMATION (U.S.A. only)

CAUTION: Changes or modification not approved by JVC could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

About burning-in of the D-ILA device

Do not allow the same still picture to be projected for a long time or an abnormally bright video picture to be projected.
Do not project video images with high-intensity or high-contrast on a screen. The video image could be burned in to the D-ILA device.
Use special care when projecting video games or computer program images. There is no problem with ordinary video-cassette playback images.

IMPORTANT SAFEGUARDS

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. But **IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARD**. In order not to defeat the safeguards incorporated into this product, observe the following basic rules for its installation, use and service. Please read these "Important Safeguards" carefully before use.

– All the safety and operating instructions should be read before the product is operated.

– The safety and operating instructions should be retained for future reference.

– All warnings on the product and in the operating instructions should be adhered to.

– All operating instructions should be followed.

– Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

– Do not use attachments not recommended by the product manufacturer as they may be hazardous.

– Do not use this product near water. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation, which may result in fire, electric shock, or other hazards.

– Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. The product should be mounted according to the manufacturer's instructions, and should use a mount recommended by the manufacturer.

– When the product is used on a cart, care should be taken to avoid quick stops, excessive force, and uneven surfaces which may cause the product and cart to overturn, damaging equipment or causing possible injury to the operator.

– Slots and openings in the cabinet are provided for ventilation. These ensure reliable operation of the product and protect it from overheating. These openings must not be blocked or covered. (The openings should never be blocked by placing the product on bed, sofa, rug, or similar surface. It should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.)

For proper ventilation, separate the product from other equipment, which may prevent ventilation and keep distance more than 60 cm (19-3/4").

– This product should be operated only with the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

– This product is equipped with a three-wire plug. This plug will fit only into a grounded power outlet. If you are unable to insert the plug into the outlet, contact your electrician to install the proper outlet. Do not defeat the safety purpose of the grounded plug.

– Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at doors, plugs, receptacles, and the point where they exit from the product.

– For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the product due to lightning and power line surges.

– Do not overload wall outlets, extension cords, or convenience receptacles on other equipment as this can result in a risk of fire or electric shock.

– Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

– Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages and other hazards. Refer all service to qualified service personnel.

– Unplug this product from the wall outlet and refer service to qualified service personnel under the following conditions:

a) When the power supply cord or plug is damaged.
b) If liquid has been spilled, or objects have fallen on the product.
c) If the product has been exposed to rain or water.
d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the Operation Manual, as an improper adjustment of controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
e) If the product has been dropped or damaged in any way.
f) When the product exhibits a distinct change in performance – this indicates a need for service.

– When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or with same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

– Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

– The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.

– When connecting other products such as VCR's, and personal computers, you should turn off the power of this product for protection against electric shock.

– Do not place combustibles behind the cooling fan. For example, cloth, paper, matches, aerosol cans or gas lighters that present special hazards when over heated.

– Do not look into the projection lens while the illumination lamp is turned on. Exposure of your eyes to the strong light can result in impaired eyesight.

– Do not look into the inside of this unit through vents (ventilation holes), etc. Do not look at the illumination lamp directly by opening the cabinet while the illumination lamp is turned on. The illumination lamp also contains ultraviolet rays and the light is so powerful that your eyesight can be impaired.

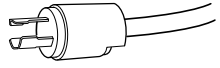
– Xenon gas is enclosed with high pressure inside the light-source lamp (lamp unit) of this projector. If you drop or impart a shock to the lamp, or discard it as is, there is the possibility of explosion, leading to personal injury. Use special care when handling the lamp. For any unclear points, consult your product dealer.

– Use only the accessory cord designed for this product to prevent shock.

The power supply voltage rating of this product is AC 220 V~ 240 V, the power cord attached conforms to the following power supply voltage. Use only the power cord designated by our dealer to ensure Safety and EMC.

When it is used by other power supply voltage, power cable must be changed.

Consult your product dealer.



Power supply voltage: AC 220 V~ 240 V

* DO NOT allow any unqualified person to install the unit.
Be sure to ask your dealer to install the unit (eg. attaching it to the ceiling) since special technical knowledge and skills are required for installation.
If installation is performed by an unqualified person, it may cause personal injury or electrical shock.

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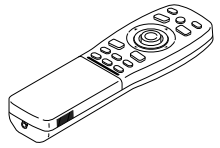
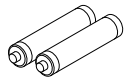
Accessories

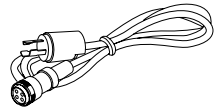
The following accessories are included with this projector. Check for them; if any item is missing, please contact your dealer.



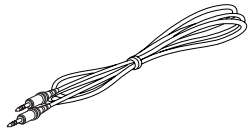
Remote control unit (RM-M4000G)



AA/R6-size dry cell battery (×2)
(for checking operation)



Power code
[approx. 3.35 m (11 ft)]



Remote control cable
[approx. 15 m (49.2 ft)]

Memo

In addition to the above accessories, an operator manual (this book) and warrantee sheet are included. If any is missing, also contact your dealer.

Information on separately sold items

- **Projection lens**

GL-M4023SZ	3 : 1~7 : 1 zoom lens
GL-M4015S	1.5 : 1 fixed-focus lens

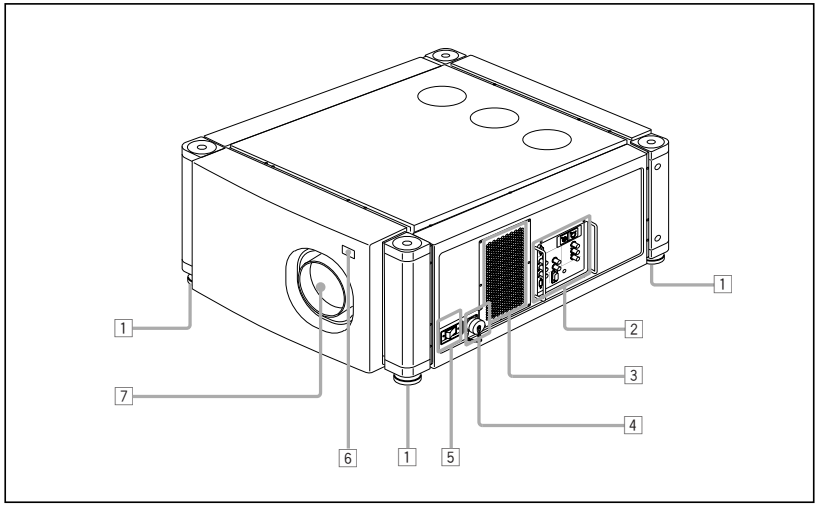
- **Video board**

PK-G1101D	A board to be used for adding composite video signal input and Y/C (S-Video) function to the projector.

DLA-M4000LU
DLA-M4000LE

Controls and Features

Front Side / Top Surface / Right Side



1 **Adjustable foot**
It is set at the shortest position when shipped from the factory. Turn the foot to make the projector level. Adjustment can be made in the range of ±4° from the vertical and ±5° from the horizontal.

2 **Connector panel**
For details, refer to “Connector Panel” on page 10.

3 **Air intake area (filter)**
Air is taken in through this area to cool the light-source lamp. If this area is blocked or if something that obstructs taking in or exhausting air is placed around the projector, heat may build up inside and could cause a fire. For details, refer to “Precautions for Installation” on page 14.

CAUTIONS

- Be careful as paper, cloth or soft cushion could be drawn in if placed nearby. Do not block the intake area, or heat may build up and could cause a fire.
- Clean the filter periodically. For details, refer to “Cleaning and Replacing the Filter“ on page 59.
  Deposition of dirt on the filter works to reduce the cooling effect, causing heat to build up inside, which could cause a fire or malfunction.

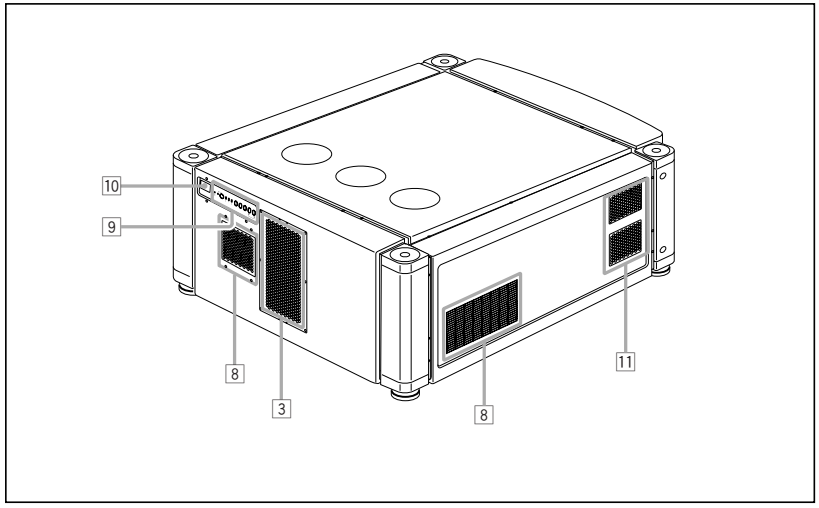
4 **AC IN (power input) terminal**
This is the power input terminal where the supplied power cord is connected. For details, refer to page 23.

5 **MAIN POWER switch**
This is the main power switch. When it is turned on, the projector goes into stand-by state, and the STAND BY indicator on the control panel comes on.
ON [I]: The main power turns on.
OFF [O]: The main power turns off.

6 **Remote sensor**
When operating with the remote control, aim it toward this sensor. An additional remote sensor is provided on the back of the projector. The effective operating distance of the remote control is 10 m from each of the sensors. The effective operating range of angles is 50° left and right, and 15° up and down.

7 **Lens mount**
Attach a projection lens separately sold to this mount.
GL-M4023SZ 3 : 1~7 : 1 zoom lens
GL-M4015S 1.5 : 1 fixed-focus lens
For information on attaching the lens, consult the dealer or service center who performed the installation and adjustments of your projector.

Left-hand side / Back Side



8 **Exhaust vents**
Vents for cooling fans through which warm air comes out.

9 **Control panel**
For details, refer to “Control Panel” (page 8 and 9).

10 **Remote sensor**
When operating with the remote control, aim it toward this sensor. An additional remote sensor is provided on the front of the projector. The effective operating distance of the remote control is 10 m from each of the sensors. The effective operating range of angles is 50° left and right, and 15° up and down.

11 **Air exhaust port**
Warm air comes out of this port from the cooling fan for the light-source lamp power supply. This fan continues running as long as the MAIN POWER switch is on.

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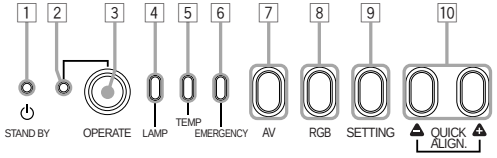
Control Panel



1 **STAND BY Indicator**
ON : When in stand-by mode.
Blinking : When in cool-down mode.

CAUTIONS

- The cool-down mode continues for about 20 seconds, during which projection cannot–be started again. After the cooling-down period, the projector goes into stand-by mode, but the cooling fans will continue to run for about 10 minutes more before they stop (exept the cooling fan for the light-source lamp power supply which continues running as long as the MAIN POWER switch is on).
- The purpose of the cool-down mode is to prevent inner parts from being deformed or broken by heat from the heated lamp as well as to prolong the life of the lamp. Do not turn off the main power switch while in the cool-down mode. Also, do not block any of exhaust openings while in cool-down mode.

2 **OPERATE indicator**
ON: When the projector is in operation (projecting)

3 **OPERATE button**
When the projector is in the stand-by mode, press this button for one or more seconds, and the main power switch is turned on, causing the OPERATE indicator to light. Press it again, and the projector goes into the cool-down mode, then stand-by mode.

Memo

While in the cool-down mode:
If you press the OPERATE button, the projector is not tuned on.

4 **Lamp indicator**
ON : After the light-source lamp has been used for more than approx. 900 hours.
Blinking : Replace the lamp. (Ask the dealer where you purchased your projector to replace the lamp.)

5 **TEMP indicator**
ON : The temperature inside the projector has abnormally risen.

Note

- While the TEMP indicator is on (during abnormal temperature), the power is automatically cut off, and an emergency mode is shown (with the EMERGENCY indicator blinking).

6 **EMERGENCY indicator**
Blinking: Something abnormal has occurred with the projector.

Memo

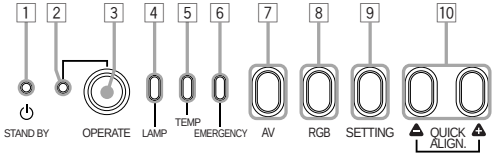
About the emergency mode:
The emergency mode is shown when the following anomalies have occurred with the projector (the EMERGENCY indicator blinks). In the emergency mode, projection is automatically interrupted and the cooling fans operate for about 10 minutes (except the cooling fan for the light-source lamp power supply which continues running as long as the MAIN POWER switch is on).

- **When the filter is clogged.**
- **When the light-source lamp has suddenly gone off.**
- **When the fans have stopped.**
- **When the temperature inside has risen abnormally high.**

CAUTION

- **When an emergency mode is shown:**
After the cooling fans (except the one for the light-source lamp power supply) have stopped, turn off the main power switch and unplug the power cord from the wall outlet.
Check that the filter covers are correctly installed. Then, plug in the power cord again and try operating the projector.
If it goes into an emergency mode again, after the cooling fans have stopped, turn off the main power switch, unplug the power cord, and call your dealer for repair.

Control Panel (Cont.)



7 **AV button**
Use this button to select a device such as a video deck connected to the EXT. IN terminal of the projector. Each time you press the button, the device selected changes as follows:

* Y/C and VIDEO can be used only when a video board separately sold has been installed.

8 **RGB button**
Use this button to select a device connected to the RGB -1 or -2 terminals. Each time you press the button, the selection changes as follows:

9 **SETTING button**
Use this button to call up the setting menu. For details, refer to “Making Basic Settings” on page 30.

10 **QUICK ALIGN. button**
While a menu screen is shown, use this button to adjust the values for the item selected. When no menu is shown, the quick alignment function works.

- **When a menu is shown**
  ▲ button: The value for the selected item increases.
  ▼ button: The value for the selected item decreases.
- **When no menu is shown**
  Press the ▲ button and ▼ button at the same time: QUICK ALIGNMENT is displayed on the screen and the quick alignment function works (TRACKING, PHASE, H. POS. and V. POS. are automatically adjusted). When the adjustment is finished, the display goes off automatically.

Memo

The quick alignment function :

- Works for computer input (RGB- 1 and - 2 input terminals) signals.
- Does not work for video input (EXT. IN input terminal) signals.

CAUTION

- Automatic adjustment with the quick alignment function should be done on a bright still-picture screen. This function may not work correctly on a dark screen or motion-picture screen. If adjustment with this function is not satisfactory, adjust TRACKING, PHASE, H. POS. and V. POS. manually (see pages 30, 36 and 37).

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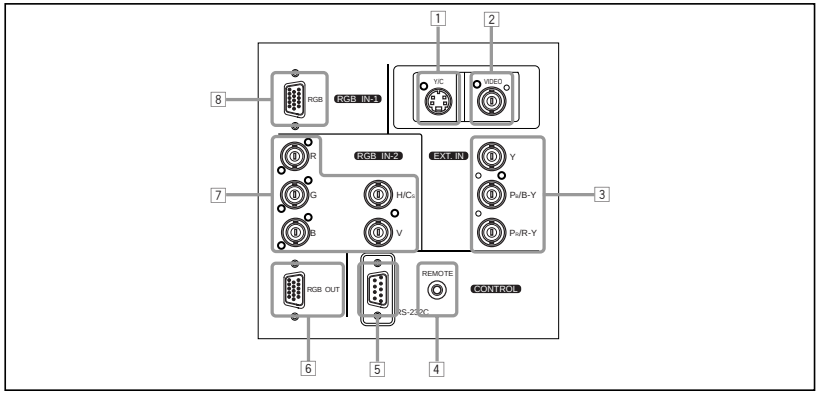
Connector Panel



1 **Y/C (S video) input terminal (Mini DIN 4 pin)**
Connect this terminal to the S video output terminal of a video deck, etc.
* This terminal can be used if a video board (PK-G1101D) sold separately has been installed. The terminal was not provided when the projector was shipped from the factory.

2 **VIDEO (composite video) input terminal (BNC)**
Connect this terminal to the composite video output terminal of a video deck, etc.
* This terminal can be used if a video board (PK-G1101D) sold separately has been installed. The terminal was not provided when the projector was shipped from the factory.

3 **Y, P_B/B-Y, P_R/R-Y input terminals (BNC)**
These are input terminals for component (Y, B-Y, R-Y) signals or DTV-format (Y, P_B, P_R) signals.
Device with component signal output terminals, such as for NTSC and DTV-format, can be connected.
* For details about DTV-format signals (480i, 480p, 720p, 1080i) compatible with this unit, refer to page 66.

4 **REMOTE terminal (mini jack)**
This terminal is used to directly connect the remote control to the projector. Use the remote control cable supplied. An infrared remote control extension unit can also be connected to the jack.

5 **RS-232C terminal (D-sub 9 pin)**
This is a RS-232C interface-specified terminal. This projector can be controlled by a computer connected externally.

6 **RGB OUT (RGB output) terminal (D-sub 3-row 15 pin)**
The computer input signal projected on the screen is output. A display unit can be used by connecting it to this terminal.

7 **RGB IN (RGB input) -2 terminal (BNC)**
These are input terminals for analog RGB signals, vertical sync (V) signals, and horizontal sync (H) signals / composite signals(Cs). Devices which have analog RGB signal output terminals can be connected.
*** Input of external sync signals is automatically detected.**
Detection of H/V signals or Cs signals causes automatic switch to external sync. The priority order is H/V > Cs.

CAUTION

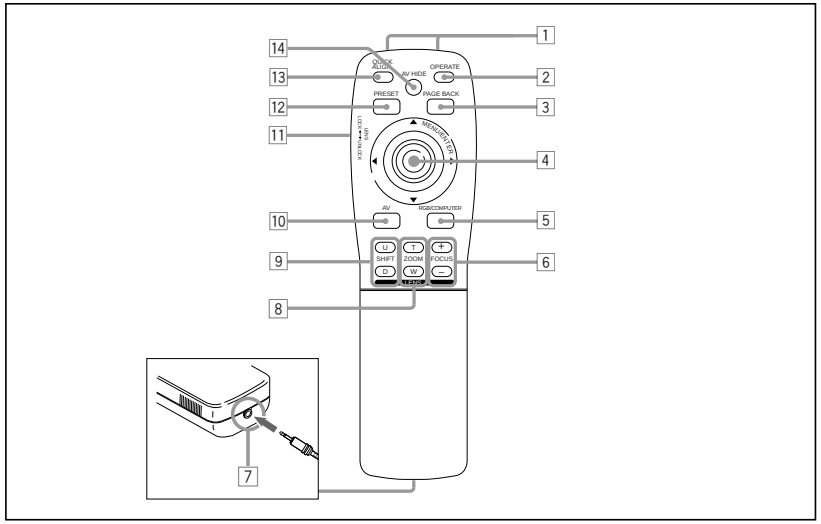
- When computer-related signals are input, the uppermost edge of the screen may appear bowing if the sync signal input is composite sync (Cs) or G on sync signal. In that case, use separate sync signals for vertical sync (V) and horizontal sync (H).

8 **RGB IN (RGB input) -1 terminal (D-sub 3- row 15 pin)**
This is an input terminal (PC) dedicated for computer signals (RGB video signals and sync signals).
Connect the display output terminal of the computer to this terminal. When a Macintosh or PC-9801/9802 series computer is to be connected, use a suitable conversion adapter separately available.

CAUTION

- When computer-related signals are input, the uppermost edge of the screen may appear bowing if the sync signal input is composite sync (Cs) or G on sync signal. In that case, use separate sync signals for vertical sync (V) and horizontal sync (H).

Remote Control Unit



1 **Remote control's signal transmitter**

2 **OPERATE button**
To turn on or off the power, press this button for one or more seconds.
* About 30 seconds after the power has turned on, video image will appear on the screen.

3 **PAGE BACK button**
While no menu is displayed, pressing this button causes a direct channel to be displayed.

Memo

Direct channel display:
A direct channel display allows you to switch between channels which have lines and sources registered. For details, refer to "Switching channels using a direct channel" (page 52).

4 **MENU/ENTER button**
Use this button to display the main menu, or while the main menu is displayed, use the button to select an item to adjust or make adjustment. While the main menu is displayed, pressing MENU/ENTER displays a details setting (submenu) if the selected item has a details setting.
For how to operate the buttons, see page 13.

5 **RGB / COMPUTER button**
Use this button to select the devices connected to the projector's RGB IN (RGB input) -1 and -2 input terminals. Each time you press the button, the selection changes as follows:

6 **FOCUS (+/–) button**
Use these buttons to adjust the focus of the projected picture.
+: The focus point becomes more distant.
–: The focus point becomes nearer.

7 **REMOTE terminal**
Use a remote control cable to connect between the projector and the remote control. For details, refer to "Connecting to Devices which Control the Projector" on page 22.

8 **ZOOM (T/W) button**
Use these buttons to increase or decrease the screen size. (They can only be used when a zoom lens is used.)
T: The screen size decreases.
W: The screen size increases.

9 **SHIFT (U/D) button**
Use these buttons to adjust the height of the projection screen when projectors are used in a stack configuration.
U: Moves the screen upwards.
D: Moves the screen downwards.

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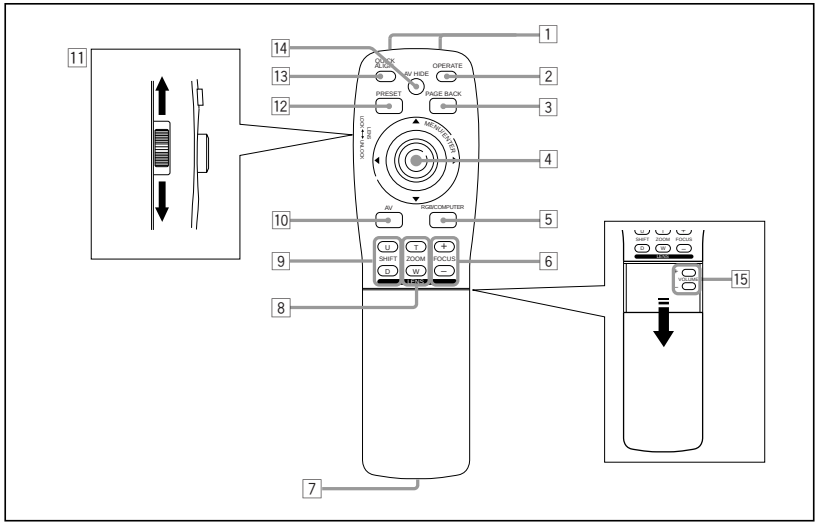
Remote Control Unit



10 **AV button**
Use this button to select the devices such as a video connected to the projector's AV IN (EXT. input) terminal. Each time you press the button, the selection changes as follows:

Y/C* → VIDEO* → YPBPR

* Y/C and VIDEO can be used only when a video board separately sold has been installed.

11 **LENS LOCK ↔ UNLOCK switch**
With this switch set at the LOCK position, adjustment operations (focus, zoom or shift) with the remote control are disabled, preventing adjustment contents from being inadvertently changed while the remote control is being used. When adjustment is needed, set the switch to the UNLOCK position.

12 **PRESET button**
While making adjustment on the main or setting menu, use this button to reset the setting of the selected item to the factory-set value. This button works only for numerical settings and does not work for switching ON to OFF.

13 **QUICK ALIGN. (Quick Alignment) button**
Use this button to automatically adjust TRACKING, PHASE, H. POS. and V. POS. of the projected video. During the automatic adjustment, QUICK ALIGNMENT appears on the screen, and disappears after it is finished.

Memo

Quick alignment function:
Does not work for video input (EXT. IN input terminal) signals.
Works only for computer-related (RGB-1 and-2 input terminals) signals.

CAUTION

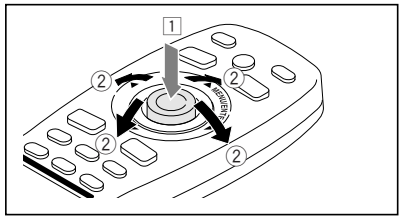
- Automatic adjustment with the quick alignment function should be done on a bright still-picture screen. This function may not work correctly on a dark screen or motion-picture screen. If adjustment with this function is not satisfactory, adjust TRACKING, PHASE, H. POS. and V. POS. manually (see pages 30, 36 and 37).

14 **AV HIDE button**
Use this button to turn off the video image temporarily. Pressing it again makes the video image to resume.

15 **Not used with this projector**

MENU / ENTER (Menu Operation) Button

The remote control supplied with this projector has only one button to navigate through the menus. Pressing the menu operation button too strongly may cause an incorrect operation. So, before you use the button in an actual situation, have some practice to make yourself familiar with using the button.



1 **When using the MENU/ENTER button as a menu operation button :**
Press the button down straight when displaying the main menu. While the main menu is displayed, if the selected item has a details setting (submenu), pressing the button will cause the submenu to be displayed.

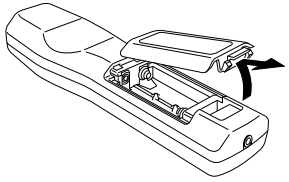
2 **When using the MENU/ENTER button as a cursor moving button:**
Press the button toward one of the ▲/▼/◄/► marks. While the main menu is displayed, use the button to select an item to adjust or make adjustment.

Installing Batteries

Install batteries in the remote control. If the remote control has started to work erratically, replace the batteries.

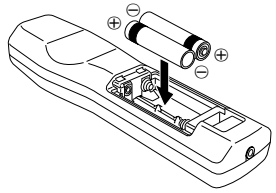
1 Open the back cover.

Open the back cover in the direction of the arrow.



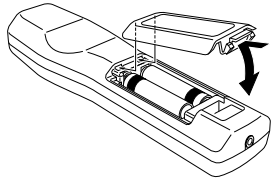
2 Install the batteries.

Place the two batteries (AA/R6-size) supplied in the remote control as illustrated below.



3 Close the back cover.

First fit the claw on the back cover into the case, then close the back cover in the direction of the arrow.



Precautions for using batteries

If batteries are used incorrectly, they may crack or leak liquid. This could cause a fire, burn, malfunction, or staining or damaging the surrounding.
Beware of the following:

- Do not mix new and old batteries.
- Do not mix different types of batteries as they differ in characteristics.
- Place batteries so they match the polarities indicated: (+) to (+) and (–) to (–).
- Be sure to put the minus (–) end in first to avoid short-circuiting.
- Use only designated batteries.
- Remove the batteries if not used for a prolonged period of time.
- When the batteries are exhausted, replace them immediately. Otherwise, liquid could leak, or malfunction could occur due to leaked liquids. If the leaked liquid contacts the skin, wipe it off with a cloth, otherwise the skin could become rough.
- Do not put batteries into fire or try to recharge them.
- Batteries run for six months to one year in normal use. But the batteries supplied are for confirming operation and may not run that long. When the remote control starts failing to work properly, replace the batteries with new ones.

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Installing the Projector

Precautions for Installation

CAUTIONS

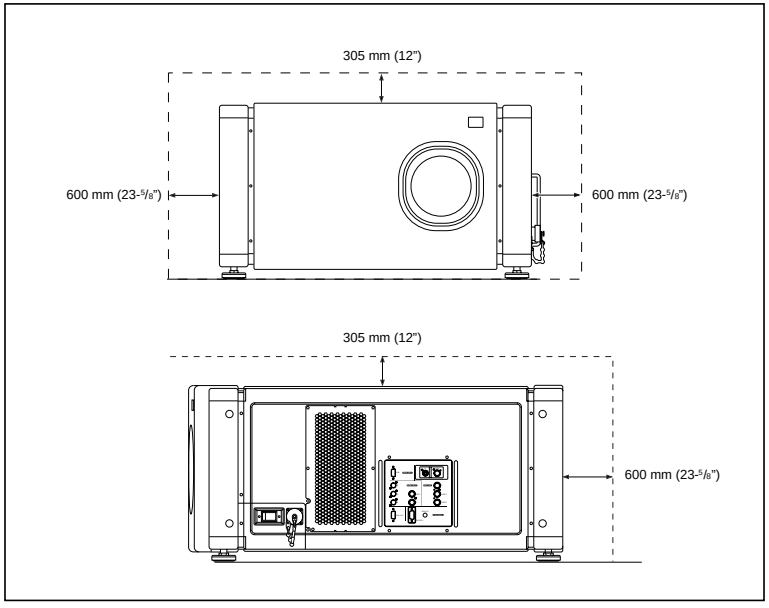
- **Since the projector weighs approx. 70 kg (154 lbs.), be sure to use four or more people when lifting or moving it; otherwise, the projector could possibly drop, causing personal injury and/or damage to the projector.**
- **Do not install the projector in the following places :**
  - There is much water, humidity or dust.
  - The projector may be subjected to oil smoke or cigarette smoke.
  - On a soft surface such as a carpet or cushion.
  - The projector may be subjected to direct sunlight.
  - Temperature is high or humidity is low.

  Allowable operation temperature range: + 5°C to + 40°C (41°F to 104°F)
  Allowable relative humidity range: 90% or less (no condensation)
  Allowable storage temperature range: –5°C to +60°C (23°F to 140°F)

■ **When installing the projector, observe the followings:**

- **Do not use the projector placed on its side.**
  Avoid using the projector placed on its side. This could cause a malfunction.
- **Use the projector within the installed angle.**
  Avoid using the projector inclined ±5° or more right-to-left or left-to-right. This could cause color variation or harm the lamp life.
- **Do not block the exhaust vents.**
  Do not use a cover which encloses the projector air-tight or blocks the exhaust vents. Allow sufficient space around the projector. When the projector is enclosed in a space of the following dimensions, use an air conditioner so the temperature inside becomes equal to the outside temperature.

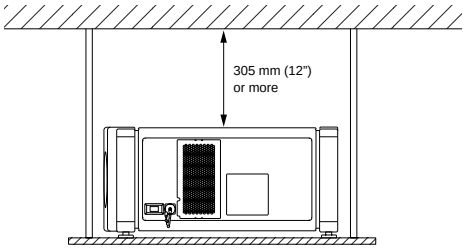
Allowable minimum space required



Precautions for Installation (Cont.)

■ **Observe the following points when installing the projector by hanging it from the ceiling**

- To prevent falling or overturning, it is recommended that the projector be fixed to its stand with bolts.
- When mounting the projector to the ceiling, first install a special shelf and then set the projector on it securely. For safety and maintenance purposes, a suitable facility is necessary to easily lift and lower the projector from the shelf for maintenance access.

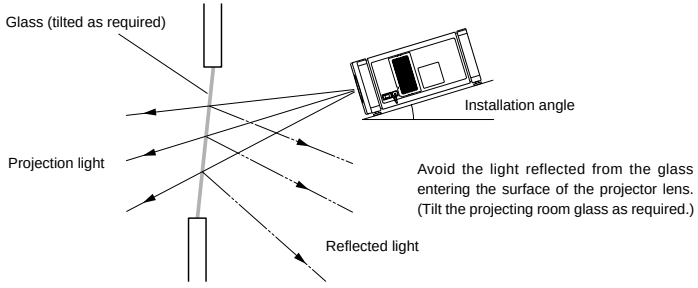


Relationship relative to Glass Surface

■ **Light energy decreases as it passes a glass. So, no more than one glass should be used in the projecting room.**

■ **Avoid using panes of glass as much as possible.**

■ **Pay attention to the angle of the glass and the installed angle of the projector so that the light emitted from the projector does not come back into the lens after reflection.**


Glass (tilted as required)
Installation angle
Projection light
Avoid the light reflected from the glass entering the surface of the projector lens. (Tilt the projecting room glass as required.)
Reflected light

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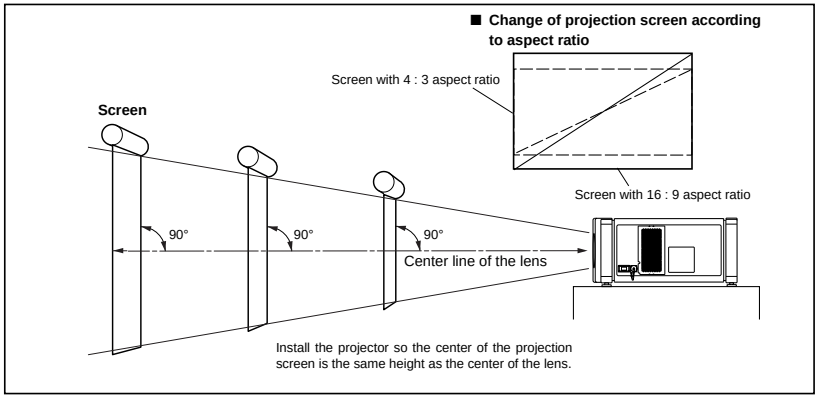
Lens Shift Function


■ Change of projection screen according to aspect ratio
Screen with 4 : 3 aspect ratio
Screen
Screen with 16 : 9 aspect ratio
90°
90°
90°
Center line of the lens
Install the projector so the center of the projection screen is the same height as the center of the lens.

The separately sold lenses used on the projector have a lens shift function. With the lens used, you can adjust the projected image vertically using the setting menu or the remote control's SHIFT button U or D.
When using the projectors in a stack configuration (stacked one over another), make adjustment so that the picture of one projector overlays exactly that of another using the lens shift function.
For detailed adjustment procedures, refer to "Operating the Setting Menu" (page 30) and "Controls and Features" (page 11).
For maximum amount of shift, refer to "Maximum Amount of Shift" (page 17).
(When the lens needs to be adjusted in horizontal angles, consult your dealer or service center.)

Note

• Some of the lenses (except GL-M4023SZ and GL-M4015S) to be introduced in the future may not feature the lens shift function.

Memo

Stack configuration:
Up to four projectors can be stacked and used together (stack configuration).
Using two or more projectors together, high image brightness can be attained. This allows you to project sufficiently bright image in a fairly large auditorium or relatively bright place without using a heavy-duty projector.

CAUTION

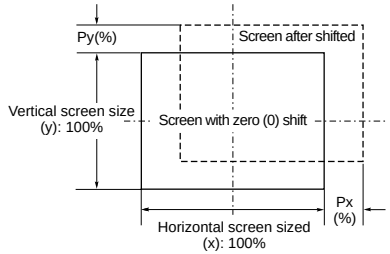
To prevent damage to the projector during shipment, a shift center lock pin was used to fix the lens mechanism when the projector was shipped out the factory. If you implement "SHIFT LENS" on the setting menu and the lens does not either move up or down, the shift center lock pin may not have been removed. Consult your dealer or service center.

CAUTIONS and NOTES

- When installing the screen, use a 4 : 3 aspect ratio picture.
  (A 16 : 9 aspect ratio picture is projected based on the width of the range in which a 4 : 3 aspect ratio picture is projected.)
- The diagonal length of a 16 : 9 aspect ratio picture is about 91.8% that of a 4 : 3 aspect ratio picture. This value is a guide and should be used as a reference.
- When projecting at the maximum projection distance, we recommend that the projector be used with the zoom on the Tele (T).
- If sunlight or lamp light strikes the projection screen directly, the picture becomes whitish and dim. Be sure to use a curtain, etc. to shield the light.
- Trapezoidal distortion may not be corrected.
  Adjust the projector within the range of angle adjustment (up/down adjustment angle: +4°; horizontal adjustment angle: ±5°) so that it is set up level.

Lens Shift Function (Cont.)

Maximum amount of shift
The maximum amount of vertical shift is restricted by the amount of horizontal shift made.
The amount of shift is defined as follows:
With the screen width taken as 1, horizontal shift is defined as a ratio (%) of the screen width, while with the screen height taken as 1, vertical shift is defined as a ratio (%) of the screen height.



Relational table for maximum shift amounts (aspect ratio 4 : 3)

Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)
0.000	31.968	10.000	28.102	20.000	23.272	30.000	17.268	40.000	9.739
1.000	31.621	11.000	27.666	21.000	22.729	31.000	16.592	41.000	8.881
2.000	31.265	12.000	27.219	22.000	22.173	32.000	15.900	42.000	8.000
3.000	30.901	13.000	26.762	23.000	21.606	33.000	15.192	43.000	7.096
4.000	30.528	14.000	26.295	24.000	21.026	34.000	14.467	44.000	6.167
5.000	30.146	15.000	25.818	25.000	20.434	35.000	13.725	45.000	5.213
6.000	29.756	16.000	25.331	26.000	19.828	36.000	12.966	46.000	4.231
7.000	29.356	17.000	24.833	27.000	19.209	37.000	12.189	47.000	3.221
8.000	28.948	18.000	24.324	28.000	18.577	38.000	11.392	48.000	2.180
9.000	28.530	19.000	23.803	29.000	17.930	39.000	10.576	49.000	1.107
								50.000	0.000

Relational table for maximum shift amounts (aspect ratio 16 : 9)

Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)
0.000	31.968	10.000	26.609	20.000	19.421	30.000	9.747
1.000	31.503	11.000	25.980	21.000	18.581	31.000	8.599
2.000	31.234	12.000	25.333	22.000	17.716	32.000	7.410
3.000	31.528	13.000	24.666	23.000	16.824	33.000	6.178
4.000	30.018	14.000	23.980	24.000	15.905	34.000	4.900
5.000	29.491	15.000	23.274	25.000	14.958	35.000	3.573
6.000	28.949	16.000	22.548	26.000	13.981	36.000	2.193
7.000	28.389	17.000	21.800	27.000	12.973	37.000	0.756
8.000	27.813	18.000	21.030	28.000	11.933	37.509	0.001
9.000	27.220	19.000	20.237	29.000	10.858		

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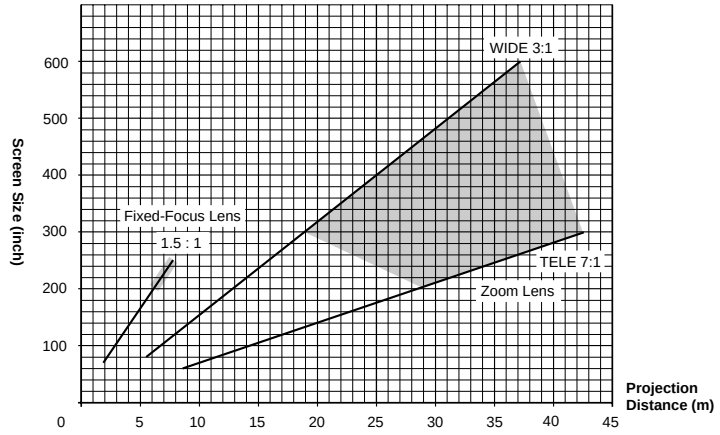
Projection Distances and Screen Sizes

Lenses that can be used are a 3 : 1 ~ 7 : 1 zoom lens and a 1.5 : 1 fixed-focus lens. With a zoom lens used, you have a wider latitude in selecting projection distance and installation space than with a fixed lens.
For how to install the lens, consult the dealer who installed and adjusted your projector or service center.

Relationship of screen width vs. projection distance



In the shaded areas in the above graph, the projected image may be partially distorted or missed out depending on the distance between the projector and the screen. To project an image with no image distortion or missing, we recommend you to use the projector in the areas defined with solid lines in the graph.

Adjustable range of the lens

Lens	Screen Size (Type)	Projection Distance (m)	Remarks
GL-M4023SZ zoom lens	80 – 300 (80 – 600)	5.06 – 18.65 (5.06 – 37.19)	3:1 wide
	60 – 200 (60 – 300)	8.65 – 28.56 (8.65 – 42.79)	7:1 tele
GL-M4015S fixed-focus lens	69 – 208 (65 – 250)	2.09 – 6.50 (1.97 – 7.83)	————

The numbers in ( ) represent the minimum to maximum adjustable range.

Connecting to Various Devices

*** Before connection, be sure to turn off the projector and connected devices.**
*** Read the manual which comes with each device thoroughly.**

Signals that Can Be Input to the Projector

The following signals can be input to the projector:

■ Video signals

(1) Response to color systems

Input terminal \ Color system	NTSC 480i	NTSC4.43	PAL	SECAM
VIDEO*3	○	○	○	○
Y/C*3	○	○*1	○	- - - - -
Y, P_B/B-Y, P_R/R-Y	○*2	○*2	○*2	○*2
G, B, R, H/C_S, V	○*2	○*2	○*2	○*2

*1 : Responds if Y/C output is available.
*2 : Signifies that component signals ("Y, P_B, P_R " / " Y, B-Y, R-Y" / "G, B, R, H/C_S, V") conform to the signal timing (synchronization and video period) of each color system. The color systems are used for convenience only.
*3 : To use these terminals, a video board (separately sold) is required.

(2) Response to double density (*1), high-vision signals

Input terminal	NTSC*2	PAL*3	High-vision signal
Y, P_B/B-Y, P_R/R-Y	○	○	○
G, B, R, H/C_S, V	○	○	○

*1 : Signals whose density of scanning lines/field is twice as high.
*2 : Responds to signals whose horizontal scanning frequency is 31.5 kHz. NTSC can be made twice as dense by a line doubler (separately available: recommended article). Also, possible to respond to fully-specified, decoded 525P progressive signals.
*3 : Responds to signals whose horizontal scanning frequency is 33.5 kHz. PAL can be made twice as dense by a line doubler (separately available: recommended article).

Notes

- DTV-format signals (480i, 480p, 720p, 1080i) can be input into this unit (Y, P_B/B-Y, P_R/R-Y input terminals).
  For details about DTV-format signals (480i, 480p, 720p, 1080i) compatible with this unit, refer to page 66.

■ Computer signals

- Signals with the following resolutions can be input to the input terminal of RGB IN-1 (PC) or RGB IN-2 (G, B, R, H/Cs, V). (The following signals are preset.)

Screen resolution (standard name)	Horizontal frequency	Vertical frequency	Scanning method
640 × 400 (PC-9801)	24.8kHz	56.4Hz	Non-interlace
640 × 350 (VGA1)	31.5kHz	70.1Hz	Non-interlace
640 × 480 (VGA3)	31.5kHz	59.9Hz	Non-interlace
640 × 480 (Macintosh 13")	35.0kHz	66.7Hz	Non-interlace
640 × 480 (VGA VESA)	37.5kHz	75.0Hz	Non-interlace
800 × 600 (SVGA1)	37.9kHz	60.3Hz	Non-interlace
800 × 600 (SVGA2)	48.1kHz	72.2Hz	Non-interlace
832 × 624 (Macintosh16")	49.7kHz	74.6Hz	Non-interlace
1024 × 768 (XGA1)	48.4kHz	60.0Hz	Non-interlace
1024 × 768 (XGA2)	56.5kHz	70.1Hz	Non-interlace
1024 × 768 (Macintosh 19")	60.2kHz	74.9Hz	Non-interlace
1152 × 870 (Macintosh 21")	68.7kHz	75.0Hz	Non-interlace
1280 × 1024 (SXGA1)	64.0kHz	60.0Hz	Non-interlace
1280 × 1024 (SXGA2)	70.8kHz	67.0Hz	Non-interlace
1360 × 1024 (SXGA3: Mac Board)	80.0kHz	75.1Hz	Non-interlace

Notes

- Interlace signals are not handled.
- Some signals other than listed above can be displayed. But they require adjustment. Even some of the signals listed above may require adjustment depending on the video board used.
- When a signal other than listed above is input, the screen could be partially erased or an unneeded fold-over screen could appear.
- Even signals in the frequency range that can be input may not be displayed normally depending on the type of the signal.
- Composite sync.(Cs) and G on sync. signals can not handled depending on the devices connected.

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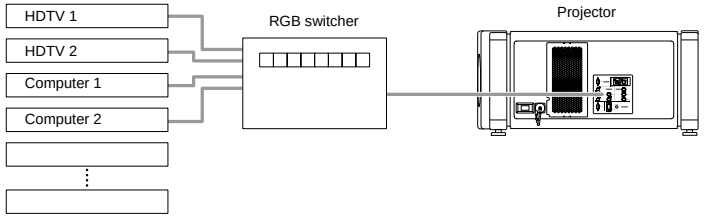
Examples of System Configuration

Before connection, be sure to turn off both the projector and the equipment to be connected.
• Also, read the manuals which came with the equipment.

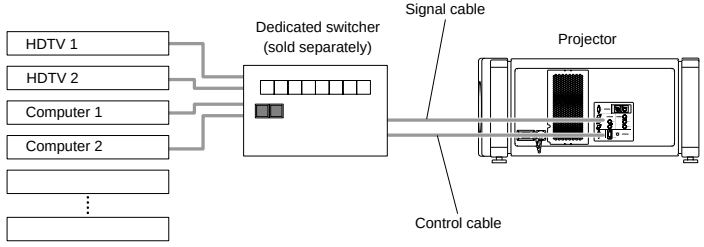
Example of a basic system

• By connecting an RGB switcher, a variety of input sources can be input to the projector as RGB signals. Using the remote control supplied, you can select the channel for an input source and project an image optimal to the source.



Example of a dedicated switcher system

• When used in combination with a dedicated switcher, the projector has its channels automatically switched in unison as the input to the switcher is changed.
For information on dedicated switchers, consult the dealer who performed the installation and adjustments or a local service center.

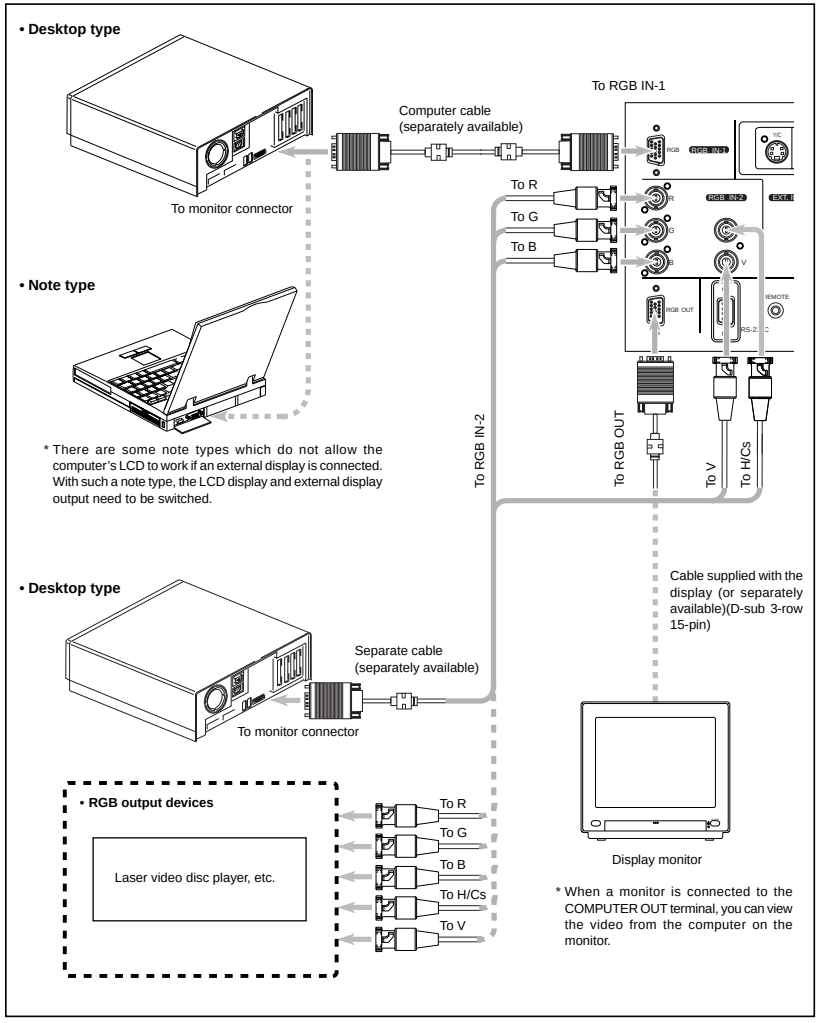


Notes

Video image displayed on devices whose image signal is unstable, such as a video deck, may be disturbed. (This can occur when the projectors is not yet adjusted at the time of installation, or when a new device is added.)
In such a case, ask the dealer where you purchased the projector or a local service center to adjust the projector.
It is recommended that you use a video deck that is equipped with an image signal correction function (such as time base corrector or frame synchronizer).

Connecting to Computer Devices

Before connection, be sure to turn off both the projector and computer devices.
• Read the manual which comes with each device thoroughly.
• Use the separately available computer connection cable. Also, prepare cables required for connecting the devices connected.


• Desktop type
To monitor connector
Computer cable
(separately available)
To RGB IN-1
To R
To G
To B
• Note type
* There are some note types which do not allow the computer's LCD to work if an external display is connected. With such a note type, the LCD display and external display output need to be switched.
To RGB IN-2
To RGB OUT
To V
To H/Cs
Cable supplied with the display (or separately available)(D-sub 3-row 15-pin)
• Desktop type
Separate cable
(separately available)
To monitor connector
• RGB output devices
Laser video disc player, etc.
To R
To G
To B
To H/Cs
To V
Display monitor
* When a monitor is connected to the COMPUTER OUT terminal, you can view the video from the computer on the monitor.

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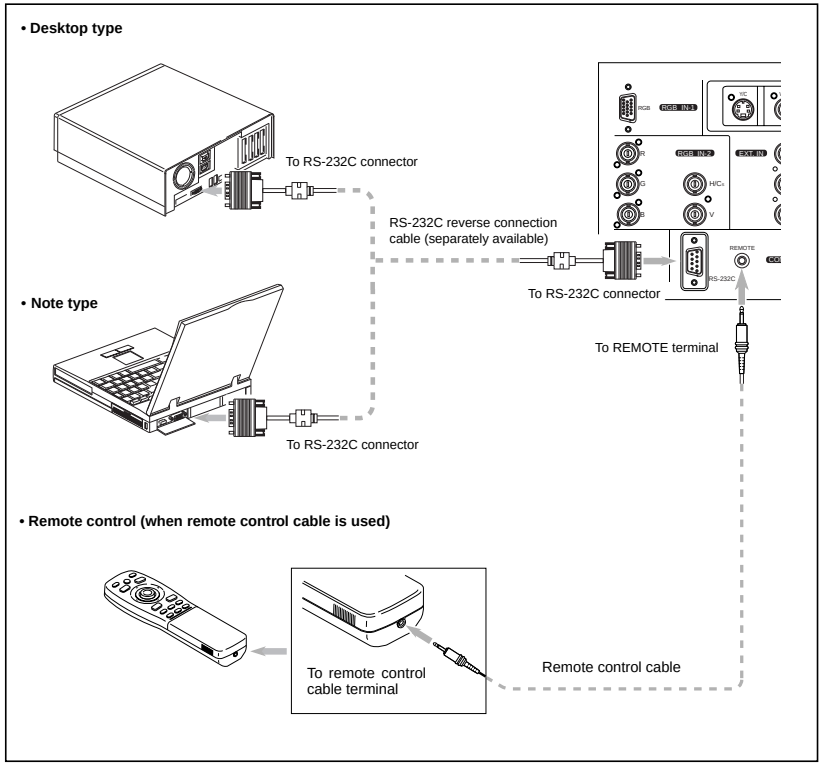
Connecting to Devices which Control the Projector

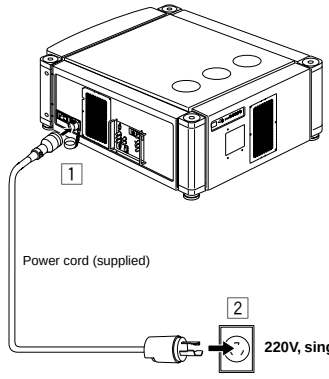
Before connection, be sure to turn off both the projector and devices to be connected.

- Read the manual thoroughly which comes with each device to be connected.
- By connecting a computer to the RS-232C terminal, you can control the projector.
  * For details, consult an authorized your dealer or service center.
- If you connect the cable terminal of the remote control and the REMOTE terminal of the projector with a remote control cable, you can use the remote control in a place or at an angle from which the infrared beam cannot reach the projector.


• Desktop type
To RS-232C connector
RS-232C reverse connection cable (separately available)
To RS-232C connector
• Note type
To RS-232C connector
To REMOTE terminal
• Remote control (when remote control cable is used)
To remote control cable terminal
Remote control cable

Connecting the Power Cord (Supplied)

After all devices have finished being connected, connect the projector's power cord. At this time, do not turn on the MAIN POWER switch yet.



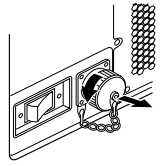
CAUTION

To prevent fire and electric shock, observe the following:

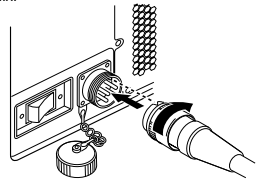
- When you do not use devices, pull out their power cords from wall outlets.
- Do not connect the devices with power cords other than supplied.
- Do not use voltage other than the power voltage indicated.
- Do not scar, damage, or work on the power cords. Also, do not put a heavy object on, heat or pull the power cords, otherwise they may be damaged.
- Do not insert or pull out the plugs with a wet hand.

1 Insert the supplied power cord into the power input terminal (AC IN ~) of the projector.

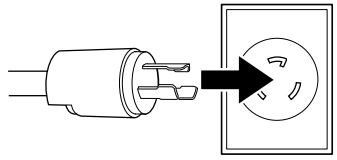
1. **Remove the power input terminal cover.**
   The cover is a screwed type. Turn the cover in the direction of the arrow to remove.



2. **Insert the projector plug of the supplied power cord into the power input terminal of the projector.**
   Align the groove on the projector plug of the power cord with the claw on the power input terminal of the projector, and push the plug in firmly.
   After that, turn the ring on the plug in the direction of the arrow to fix.



2 Insert the plug of the supplied power cord into a wall outlet, and turn the plug to right to fix.

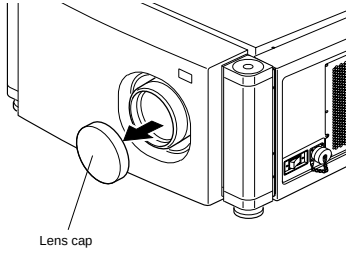


CAUTION

- Since the power requirement of the projector is high, be sure to insert the power plug directly into a wall outlet.
- This projector requires a single phase, 3-wire, 220V wall outlet.

■ To use the projector

- **Remove the lens cap.**



When Turning On the Devices Connected to the Projector

Turn on the switches of the projector and the devices connected in the following order.
Skip over unconnected devices if there is any.

Power switch of the monitor of the computer which provides input to the projector

↓

Peripheral devices of the computer which provides input to the projector
(Hard disk, magneto optical disk, scanner, etc.)

↓

Power switch of AV devices which provide input to the projector

↓

Projector itself

↓

Power switches of devices to which the projector provides output
(AV devices and display monitor)

↓

Power switch of the computer which provides input to the projector

* When turning off the power switches, do so in the reverse order.

CAUTIONS and NOTES

Do not turn off the MAIN POWER switch suddenly while the projector is being used or immediately after it has been used. This could cause a malfunction.

- Since the projector uses a high-intensity lamp and is heated to high temperature, cooling fans are operating even during projection. So, after use, the cooling fans continue to run until the light-source lamp is sufficiently cooled down after the OPERATE button was pressed. During the cooling-down, never turn off the main power switch. Turn it off only after the cooling fans (except the one for the light-source lamp power supply) have stopped running.
  (The cooling fans will run for about 10 minutes after the STAND BY indicator has changed from flashing (for about 20 seconds) to steady lighting.)
- If you press the OPERATE button immediately after the light-source lamp lights, it takes about 30 seconds for the lamp to go off. To turn the lamp on again, wait 20 seconds or more before pressing the OPERATE button.

When the TEMP indicator lights, the power turns off automatically.

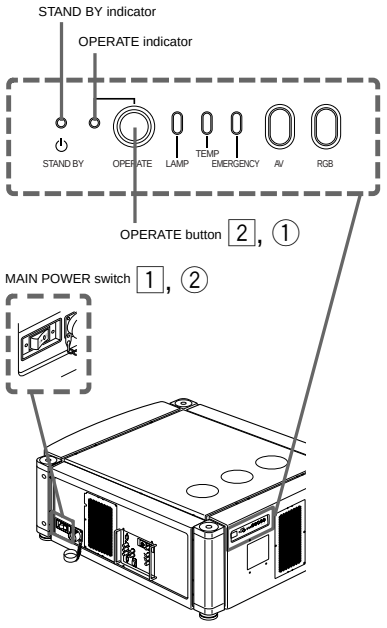
- While the light-source lamp is on, if an abnormal temperature rise is detected, the TEMP indicator comes on, the power is automatically cut off, and the projector's EMERGENCY indicator blinks (goes into an emergency mode).

When the EMERGENCY indicator blinks, turn off the main power switch after the fans have stopped running.

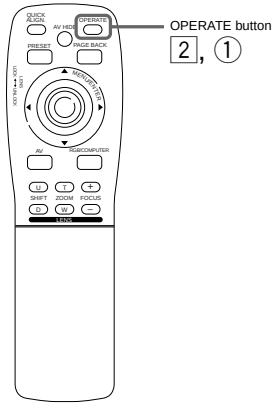
- If the following abnormality occur to the projector, it goes into an emergency mode (the EMERGENCY indicator blinks).
  When the projector goes into an emergency mode, it stops projecting automatically and the cooling fans will continue to run for about 10 minutes more before they stop (except the cooling fan for the light-source lamp power supply which continues running as long as the MAIN POWER switch is on).
  – When the fans stop running.
  – When the temperature inside rises abnormally high.
- When the projector goes into an emergency mode:
  After the fans have stopped, turn off the MAIN POWER switch and pull out the power cord. After that, re-insert the power cord and try to operate the projector. If it goes into emergency again, after the fans have stopped, turn off the main power switch, pull out the power cord, and consult your authorized dealer or service center for repair.

Basic Operations

■ **Projector's buttons**



■ **Remote control unit**



The following describes the basic procedure for normal use of the projector.

1. Turning on the Power

1 Turn on the MAIN POWER switch of the projector.

ON [I]: The main power turns on and the STAND BY indicator comes on.

Projector's indicator

2 Press the OPERATE button for one second or more. (Or press the remote control's OPERATE button for one second or more.)

- The OPERATE indicator comes on.
- About 30 seconds after the MAIN POWER switch is turned on, you can start projecting.

Remote control unit / Projector

Note

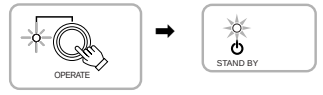
- After the power is turned on, the screen may be jumbled for a few seconds, but this is not a malfunction.

■ Turning off the Power

① Press the OPERATE button for one second or more. (Or press the remote control's OPERATE button for one second or more.)

- The STAND BY indicator changes to blinking, and the projector goes into cool-down mode.

Example of the projector's button / Projector



② Turn off the MAIN POWER switch after the cooling fans have stopped running.

OFF [O]: The MAIN POWER switch turns off and the STAND BY indicator goes off.

Projector

* Do not turn off the MAIN POWER switch during cool down mode (the STAND BY indicator blinking). About 10 minutes after the STAND BY indicator comes on steady (stand-by mode), the cooling fans (except the one for the light-source lamp power supply) will stop, and then turn off the MAIN POWER switch.

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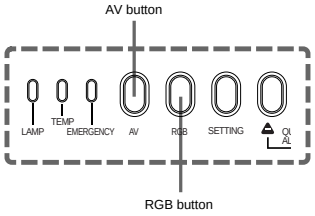
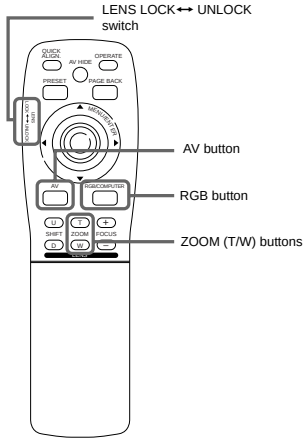
■ **Projector's buttons**



■ **Remote control unit**



ATTENTIONS

- **DO NOT give any shock to this projector while operating it;** otherwise, the light-source lamp goes off (the EMERGENCY indicator lights up).

  If the shock turns off the light-source lamp —
  Turn off the power by pressing the MAIN POWER switch, then turn it on again. Then, when the STAND BY indicator comes on, you can now operate the projector as usual.

2. Select the video input to be projected

■ **Press the AV button or the RGB button to switch the input.**

- Each time you press either button, the selected input changes as follows.

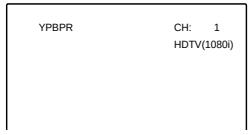
■ **When you press VIDEO:**

Y/C → VIDEO → YPBPR

■ **When you press COMPUTER:**

RGB 1 → RGB 2

Screen display



* When the input is switched, the line display and the source display are shown on the upper part of the screen (they disappear in about five seconds). However, they will not be shown if LINE DISPLAY in "Setting and Adjusting Other Functions (OPTIONS)" on page 41 is set to OFF.
(For setting the source, see page 44.)

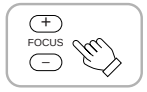
3. Adjust the screen size

■ **Adjust the screen size with the remote control's ZOOM (T/W) buttons.**
When adjusting the screen size with the ZOOM buttons, set the LENS LOCK↔UNLOCK switch to the UNLOCK position.

■ **To enlarge the screen size:**
Press the ZOOM (W) button.

■ **To reduce the screen size:**
Press the ZOOM (T) button.

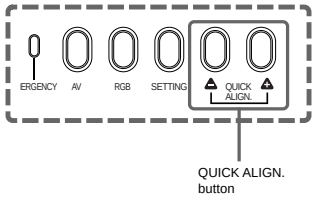
Remote control unit



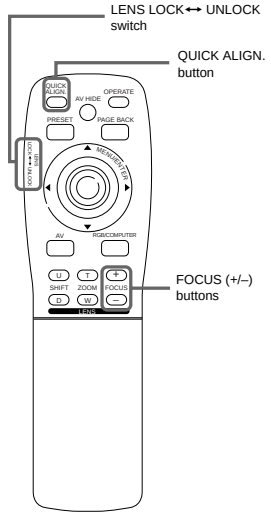
Notes

- The adjustment of the screen size (zoom adjustment) can also be made on the setting menu.
  For operating the setting menu, refer to "Making Basic Settings" on page 30.
- When a fixed-focus lens is used, you cannot operate the setting menu.

■ **Projector's buttons**



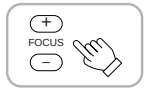
■ **Remote control unit**



4. Adjust focus

■ **Adjust focus with the remote control's FOCUS (+/–) buttons.**
When adjusting the focus with the FOCUS buttons, set the LENS LOCK↔UNLOCK switch to the UNLOCK position.

Remote control unit



Note

- Focus adjustment can also be made on the setting menu. For operating the setting menu, refer to "Making Basic Settings" on page 30.

For Operating Other Functions

■ **To use the quick alignment function**
The quick alignment function is used to automatically adjust (set) the screen settings of "TRACKING, PHASE, H. POS. and V. POS." of computer system input video.

- Use either the remote control's or projector's button.

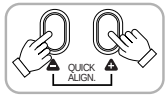
■ **When using the remote control unit:**
Press the QUICK ALIGN. button.

■ **When using the projector:**
Clear the menu display, and press the projector's QUICK ALIGN. "▲" and "▲" buttons at the same time.

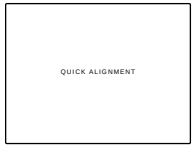
* During the automatic adjustment, "QUICK ALIGNMENT" appears on the screen and disappears automatically after the adjustment is completed.

Remote control unit

Projector



Screen display



Note

- **This function works only for computer system inputs.**

CAUTION

- **When performing automatic adjustment using the quick alignment function:**
  Use a bright, still-picture screen. It may not function correctly on a dark or motion-picture screen.
  If the condition adjusted by using the quick alignment function is not good, manually adjust TRACKING, PHASE, H. POS. and V. POS. (see pages 30, 36 and 37).

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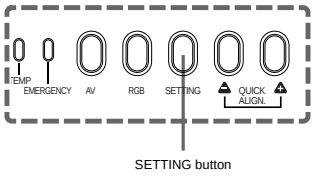
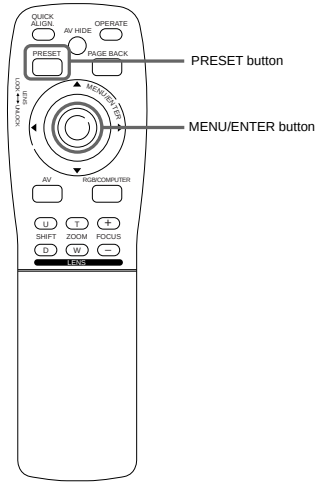
■ **Projector's button**



■ **Remote control unit**



■ **To display the SETTING menu**

The setting menu is used to make basic adjustments and settings (TRACKING, PHASE, H. POS., V. POS., FOCUS and ZOOM) of the video picture being projected after installation (connection) or after inputs are switched. For operating the setting menu, refer to "Making Basic Settings" on page 30.

• **Press the projector's SETTING button.**
The setting menu is displayed on the screen.

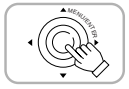
Remote control unit

■ **To display the MAIN menu**

The main menu is used to adjust or set the projected video picture and the projector's condition, etc. (PIXEL CLOCK, POSITION, PICTURE, OPTIONS, SOURCE DECODER and LANGUAGE). For operating the main menu, refer to pages 33 to 58.

• **Press the remote control's MENU/ENTER button.**
The main menu appears on the screen.

Remote control unit



Note

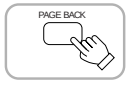
• **To change the menu language displayed**
English is set when the projector is shipped from the factory. The language displayed can be selected from the following six languages: 日本語 (Japanese), ENGLISH, DEUTSCH (German), ESPAÑOL (Spanish), ITALIANO (Italian), and FRANÇAIS (French). However, some words such as "QUICK ALIGNMENT" are displayed only in English. Pronouns such as line display and source display are similarly treated.

■ **To clear the main menu**

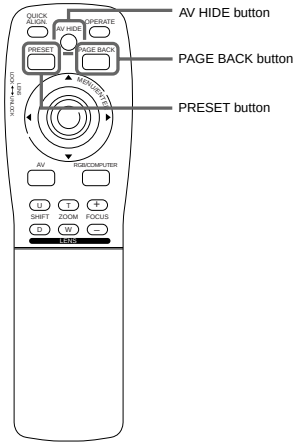
Use the PAGE BACK button to clear the main menu.
For how to operate the PAGE BACK button, see pages 33 to 58.

• **While the main menu is displayed, press PAGE BACK on the remote control.**
The main menu will disappear.

Remote control unit



■ **Remote control unit**

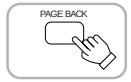


■ **To display "CHANNEL" on the screen**

While no menu is displayed, pressing the PAGE BACK button causes the channel now being used to appear.
You can also switch channels. For details, refer to "Switching Channels with a Direct Channel" on page 52.

• **While no menu is displayed, press PAGE BACK on the remote control.**
The channel appears on the screen.

Remote control unit

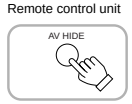


■ **To temporarily erase video image**

Press the AV HIDE button, and video image will temporarily disappear from the screen. Pressing the button again will resume the video image.

• **Press AV HIDE on the remote control.**
Video image temporarily disappears from the screen.

Remote control unit

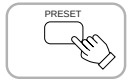


■ **To use the remote control's PRESET button**

The PRESET button is used for adjustments made on the main menu or setting menu.

• **When resetting only the selected settings to the factory-set values, press the remote control's PRESET button.**
Only the selected item's setting is reset to the factory-set value.

Remote control unit



Notes

• This button works only for numeric values. It does not work for switching between ON and OFF.
• For items such as PIXEL CLOCK (TRACKING and PHASE), POSITION (H. POS. and V. POS.), both settings are reset at the same time.

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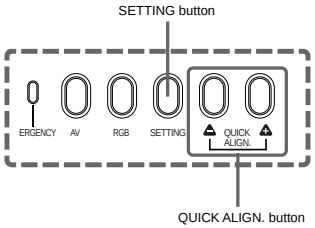
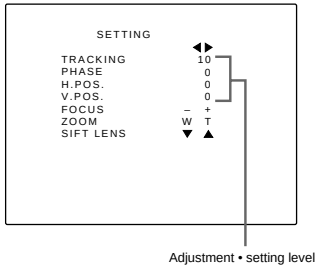
Operating the Setting Menu

Making Basic Settings

■ **Projector's buttons**



■ **Setting menu**



Description of adjustment and setting items

TRACKING : If wide vertical stripes appear on the screen, adjust the lateral video size and display area so that they disappear. (–255 ↔ 0 ↔ +255)

PHASE : If characters on the screen flicker or become dim, adjust so they become clear. (–127 ↔ 0 ↔ +127)

H. POS. : If the screen position is displaced to the right or left, adjust the horizontal position of the screen. (–255 ↔ 0 ↔ +255)

V. POS. : If the screen position is displaced upward or downward, adjust the vertical position of the screen. (–120 ↔ 0 ↔ +120)

FOCUS : Adjust the focus of video picture.
–: Focuses on near points.
+: Focuses on farther points.

ZOOM : Adjust the screen size (angle of view).
T : Becomes smaller.
W : Becomes larger.

SIFT LENS : Adjusts the projected screen position.
▼: Moves it down.
▲: Moves it up.

In this section, we are making basic picture adjustments which should be performed after installation (connection).

Notes

- The setting menu is displayed when you press the SETTING button on the projector. After the menu is displayed, you can make settings (adjustments).
- If the projector's position or connections have been changed, adjustments and settings should be performed again.
- After adjustments, if further picture adjustment is necessary depending on the equipment connected, use the main menu (pages 33 to 58) to make detailed settings and adjustments.
- For computer-related inputs, use of the quick alignment function allows automatic adjustment of TRACKING, PHASE, H. POS. and V. POS. (See pages 30, 36 and 37).

1 Press the SETTING button of the projector.

• The setting menu is displayed on the screen.

2 Press the SETTING button to select the desired item.

• The selected item is shown in magenta color. Each time you press the button, the selected item changes as follows:

TRACKING → PHASE → H. POS. → V. POS.
Menu clearing ← SIFT LENS ← ZOOM ← FOCUS

Memo

To select items using the remote control unit:
Items can be selected using the cursor buttons ▲ (backward) or ▼(forward) on the remote control unit. In this case, menu clearing in the above order is not available. The selection changes from SIFT LENS to TRACKING directly.

3 Adjust and set the selected item using the QUICK ALIGN. buttons ⚠ or ⚠.

• To adjust and set multiple items, repeat steps 2 and 3.
• To reset the adjustment value of the selected item (TRACKING, PHASE, H. POS. or V. POS.) to the factory-set value, press the remote control's PRESET button. This button does not work for focus and zoom.

Memo

To adjust and set items using the remote control unit:
Items can be adjusted or set by pressing the MENU/ENTER button toward the ◄ or ► mark on the remote control.

4 Clear the setting menu by pressing the SETTING button repeatedly.

Memo

To clear the setting menu using the remote control unit:
You can also clear the setting menu by pressing the PAGE BACK button on the remote control unit.

Operating the Main Menu

Configuration the Main Menu (AV Input) For computer inputs, see the following page.

You can adjust video quality (PICTURE) and etc. using the menus.
The menus are configured as follows:

Main menu (AV inputs : During EXT. IN input signal)

PIXEL CLOCK
- TRACKING : Normally, no adjustment is required. The lateral size and display area of video image are adjusted.
- PHASE : Normally, no adjustment is required. Flickering or dim video image is adjusted.

POSITION
- V. POS. : The vertical position of the video image being projected is adjusted.
- H. POS. : The horizontal position of the video image being projected is adjusted.

PICTURE
- BRIGHTNESS : The brightness of the video image being projected is adjusted.
- CONTRAST : The contrast of the video image being projected is adjusted.
- SHARPNESS : The sharpness of the video image being projected is adjusted.
- COLOR : The color density of the video image being projected is adjusted.
- TINT : The tint of the video image being projected is adjusted. (Displayed only for NTSC signal)
- ALL RESET : All the items adjusted are reset.

OPTIONS
- MENU AUTO OFF : Sets whether to turn off menu display automatically (YES) or not (NO).
- LINE DISPLAY : Sets whether to make the line display effective (ON) or not (OFF) for about 5 seconds after input switching.
- RIGHT LEFT REV. : Video image is reversed right-to-left.
- TOP BOTTOM INV. : Video image is inverted top-to-bottom.
- CLAMP : Sets the clamp pulse's position at the back porch (BP) or on the sink tip (ST). Normally, the clamp pulse is used at BP. If, with some PCs or workstations, the screen becomes unstable such as being too dark or too bright, try to switch to ST.
- RESIZE : Does not work with AV (video) input. (RESIZE is shown in gray.)
- BACK COLOR : Specifies the background color when there is no video signal. Background color can be selected from BLUE, CYAN, BLACK, GREEN, MAGENTA, RED, and YELLOW.
- COLOR TEMP. : Adjusts the color temperature of the image being projected. Make adjustment when the image becomes reddish or bluish. Color temperature can be set to LOW, MIDDLE, or HIGH.
- ASPECT CHANGE : Selects the vertical-to-horizontal ratio of the image projected. The factory-set ratio is 4 : 3. When projecting high-vision video image, a ratio of 16 : 9 can be selected.
- SLEEP TIME : Sets the length of sleep time. A set sleep time after input signal is depleted, the projector goes into a stand-by state. Sleep time can be selected from 10 minutes, 20 minutes, 30 minutes, 60 minutes and 0 minutes. (If you select 0 minutes, the sleep time will be cleared.)
- LAMP TIME : Indicates the accumulated used hours of the light-source lamp.

SOURCE : Normally used in AUTO. If use in AUTO is unstable such as color not appearing, the screen being disturbed or the screen being intermitted, set to the dedicated source (forced mode) in accordance with the input signal. USER allows you to set a source which is uniquely adjusted by the user.

CHANNEL : Sets a line and multiple sources for each channel.

USER SOURCE SET UP : Sets up an area for the source being input, and registers the user name.

DISPLAY SIZE : Adjusts H PIXEL, V PIXEL, H CENTER and V CENTER of video image.

DECODER : Normally, set to AUTO. The color system of an input signal is automatically identified and shown in ( ). When use in AUTO is unstable such as no color being shown, set the dedicated color system in accordance with the input signal. You can select from AUTO, NTSC(480i), NTSC4.43, PAL, and SECAM.

LANGUAGE : Text on the screen can be changed to a language other than English. Languages that can be displayed are the following six : 日本語 (Japanese), ENGLISH, DEUTSCH (German), ESPAÑOL (Spanish), ITALIANO (Italian), and FRANÇAIS (French). However, some text such as "QUICK ALIGNMENT", etc. are shown only in English.

No.51666

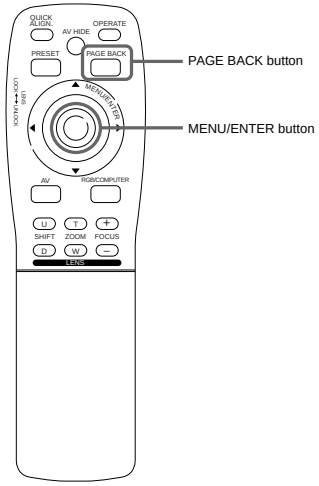
Configuration of the Main Menu (Computer-related input)

Main menu (Computer-related inputs : During COMPUTER IN-1 or -2 input signal)

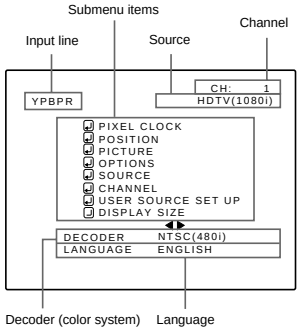
- PIXEL CLOCK
  - TRACKING : The lateral size and display area of video image are adjusted.
  - PHASE : Flickering or dim video image is adjusted.
- POSITION
  - V. POS. : The vertical position of the video image being projected is adjusted.
  - H. POS. : The horizontal position of the video image being projected is adjusted.
- PICTURE
  - BRIGHTNESS : The brightness of the video image being projected is adjusted.
  - CONTRAST : The contrast of the video image being projected is adjusted.
  - R-GAIN : The gain in red signal of the video image being projected is adjusted.
  - G-GAIN : The gain in green signal of the video image being projected is adjusted.
  - B-GAIN : The gain in blue signal of the video image being projected is adjusted.
  - TEXT MODE : Adjust easiness for reading text during RESIZE.
    - NORMAL: Normal
    - TEXT 1: Display the outline of small letters already.
    - TEXT 2: Makes the outline of large letters sharp.
  - ALL RESET : All the items adjusted are reset.
- OPTIONS
  - MENU AUTO OFF : Sets whether to turn off menu display automatically (YES) or not (NO).
  - LINE DISPLAY : Sets whether to make the line display effective (ON) or not (OFF) for about 5 seconds after input switching.
  - RIGHT LEFT REV. : Image is reversed right-to-left.
  - TOP BOTTOM INV. : Image is inverted top-to-bottom.
  - CLAMP : Sets the clamp pulse's position at the back porch (BP) or on the sink tip (ST). Normally, the clamp pulse is used at BP. If, with some PCs or workstations, the screen becomes unstable such as being too dark or too bright, try to switch to ST.
  - RESIZE : When the number of pixels (resolution) sought by the video image input is smaller than that (resolution) of D-ILA device, the video image is then enlarged to a virtually full screen size of D-ILA device and projected. (Resizing indication)
  - BACK COLOR : Specifies the background color when there is no image signal. Background color can be selected from BLUE, CYAN, BLACK, GREEN, MAGENTA, RED, and YELLOW.
  - COLOR TEMP. : Adjusts the color temperature of the video image being projected. Make adjustment when the video image becomes reddish or bluish.
    Color temperature can be set to LOW, MIDDLE, or HIGH.
  - ASPECT CHANGE : Selects the vertical-to-horizontal ratio of the video image projected. The factory-set ratio is 4 : 3. When projecting high-vision image, a ratio of 16 : 9 can be selected.
  - SLEEP TIME : Sets the length of sleep time. A set sleep time after input signal is depleted, the projector goes into a stand-by state. Sleep time can be selected from 10 minutes, 20 minutes, 30 minutes, 60 minutes and 0 minute. (If you select 0 minutes, the sleep time will be cleared.)
  - LAMP TIME : Indicates accumulated used hours of the light-source lamp.
- SOURCE : Normally used in AUTO. If use in AUTO is unstable such as color not appearing, the screen being disturbed or the screen being intermitted, set to the dedicated source (forced mode) in accordance with the input signal.
  USER allows you to set a source which is uniquely adjusted by the user.
- CHANNEL : Sets a line and multiple sources for each channel.
- USER SOURCE SET UP : Sets up an area for the source being input, and registers the user name.
- DISPLAY SIZE : Adjusts H PIXEL, V PIXEL, H CENTER and V CENTER of video image.
- DECODER : Does not work with computer-related inputs. (The color system is indicated in gray.)
- LANGUAGE : Text on the screen can be changed to a language other than English. Languages that can be displayed are the following six : 日本語 (Japanese), ENGLISH, DEUTSCH (German), ESPAÑOL (Spanish), ITALIANO (Italian), and FRANÇAIS (French). However, some text such as "QUICK ALIGNMENT", etc. are shown only in English.

Operating the Main Menu (Basic Operation of the Main Menu)

■ Remote control unit



■ Main menu



For projector's menus, the setting menu and the main menu are available.
Here, we explain about the operation of the main menu.
For the setting menu, refer to "Making Basic Settings" on page 30.

1 Press the MENU/ENTER button.

• The main menu is displayed on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select an item.

• The selected item (displayed text) is shown in magenta color on the screen.

3 Set (adjust) the item.

■ **When you have selected DECODER or LANGUAGE,**
• Press MENU/ENTER toward the ◄ or ► mark to set.
* To finish the main menu, press the PAGE BACK button.

■ **When you have selected an item on the submenu,**
• Press MENU/ENTER to display the submenu. Then, set (adjust) the item by pressing MENU/ENTER toward the ◄/► or ▲/▼ mark.
* To return to the main menu, press PAGE BACK again. To finish the main menu, press PAGE BACK again. (To finish the main menu from the submenu, press PAGE BACK twice.)

■ **About main menu display:**

Line display: The selected input-mode designation is displayed. For input-mode designation, "Y/C", "VIDEO", "Y, P_B/B-Y, P_R/R-Y", "COMPUTER 1" and "COMPUTER 2" are available.

Source display: The type of signal being input is displayed. With this projector, unique designations are previously given to specific horizontal and vertical frequencies. This allows the source selected under SOURCE (submenu item) to be indicated. The source setting can be selected from AUTO mode, dedicated (forced) modes and USER mode. When AUTO is selected, the horizontal and vertical frequencies of a signal being input are detected and the matched designation is displayed in ( ).
Display example: "AUTO (NTSC(480i))"
Therefore, be careful as the source display does not always correspond to the indication or type of the input signal.
For the unique designations for the specific horizontal and vertical frequencies, see page 19.

Channel display: The channel selected by the user is displayed. The line, sources and switcher No. selected by the user have been registered to the channel. Once registered, the line, sources and switcher No. of the projector will change to the ones the user has registered only by switching between channels. The settings should be made on the "Channel setup/selection menu". For details, see page 47.

Submenu item display: See pages 36 to 58.
Decoder (Color system) display: See page 34.
Language display: See page 35.

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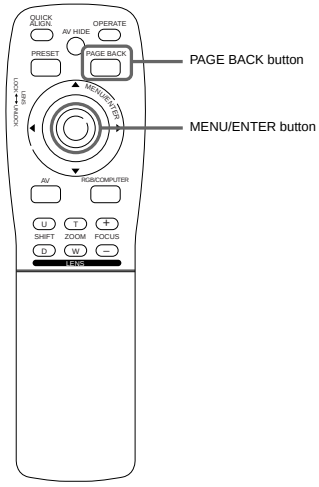
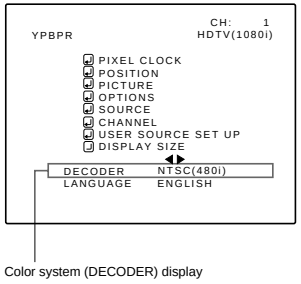
DLA-M4000LU
DLA-M4000LE

Changing the Color System

■ Remote control unit



■ Main menu



Color system (DECODER) display

Note

- When computer-related signal is input, the display of the color system is changed to gray color, making operation impossible. When video signals from AV devices are input, the item for the color system can be set.

AUTO is set for the color system when the projector is shipped from the factory. Normally, use it in AUTO. If operation in AUTO is unstable such as with color not being shown, set to a dedicated color system in accordance with the color system of the signal being input.

1 Press the MENU/ENTER button.

- The main menu is shown on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select “DECODER”.

- The selected item (displayed in text) is shown in magenta color on the screen.

3 Press MENU/ENTER toward the ◄ or ► mark to set.

- Each time you press MENU/ENTER toward the ◄ or ► mark, the color system changes as follows:
  ► : Forward / ◄ : Backward

AUTO ..... Normally, set to AUTO. The color system of a signal being input is automatically identified.
NTSC(480i) ..... Dedicated to NTSC(480i).
NTSC4.43 ..... Dedicated to NTSC4.43.
PAL ..... Dedicated to PAL.
SECAM ..... Dedicated to SECAM.

Memo

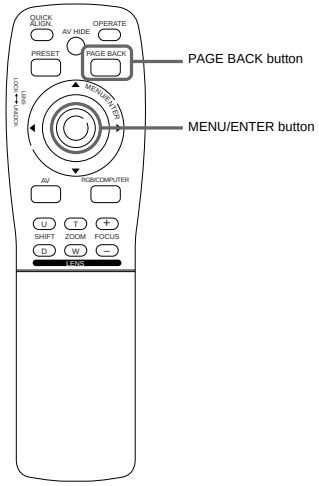
About automatic signal identification

- AUTO is selected when shipped from the factory. In AUTO, the color system (DECODER) of the signal being input is automatically identified and indicated in ( ). Refer to the main menu display.
- If operation in AUTO is unstable such as with color not being shown, set to a dedicated color system in accordance with the color system of the signal being input. When the dedicated color system is set, be careful as automatic identification does not work.

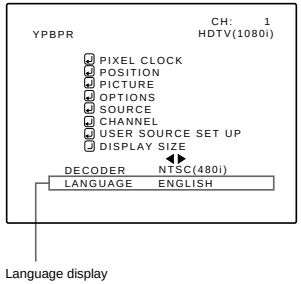
■ To finish the main menu, press the PAGE BACK button.

Changing the Language Display

■ Remote control unit



■ Main menu



Language display

Note

- The selected item is shown in magenta color. Items shown in gray cannot be operated or set in the current mode.

The language in the menu display is set to English when shipped from the factory. When you want to change to another language, set it as follows.

1 Press the MENU/ENTER button.

- The main menu is shown on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select “LANGUAGE”.

- The selected item (displayed in text) is shown in magenta color on the screen.

3 Press MENU/ENTER toward the ◄ or ► mark to set.

- Each time you press MENU/ENTER toward the ◄ or ► mark, the selected language changes as follows:
  ► : Forward / ◄ : Backward

日本語 ..... Japanese
ENGLISH ..... English
DEUTSCH ..... German
ESPAÑOL ..... Spanish
ITALIANO ..... Italian
FRANÇAIS ..... French

Memo

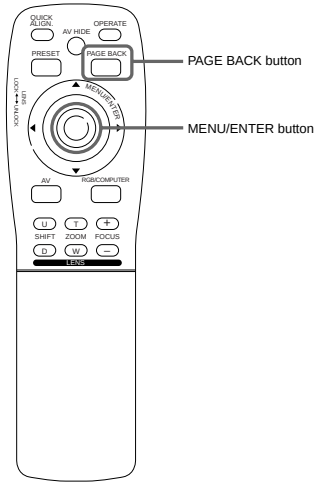
About language display

English is selected when the projector is shipped from the factory. The languages in the menu display are the following six : 日本語 (Japanese), ENGLISH, DEUTSCH (German), ESPAÑOL (Spanish), and FRANÇAIS (French).
However, some text such as “QUICK ALIGNMENT” is displayed only in English. Unique designations such as line display and source display are similarly indicated.

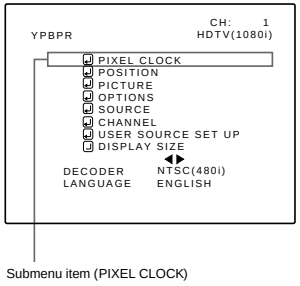
■ To finish the main menu, press the PAGE BACK button.

Adjusting the Pixel Clock

■ Remote control unit



■ Main menu



Submenu item (PIXEL CLOCK)

Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- A dim screen could be caused by insufficient adjustment of brightness and contrast. Before adjusting phase, make sure that brightness and contrast are correctly adjusted.

The pixel clock should be adjusted mainly for computer-related inputs. (Normally, it does not need to be adjusted for video inputs.) If a wide stripe appears on the screen, adjust the lateral size of video image and the display area (tracking adjustment) so the stripe disappears. Also, if text on the video screen appears flickering or dim, make adjustment so it becomes clear (phase adjustment).

1 Press the MENU/ENTER button.

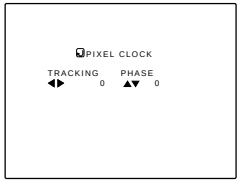
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "PIXEL CLOCK".

- The selected item (displayed in text) is shown in magenta color on the screen.

3 Press the MENU/ENTER button.

- The submenu items of the PIXEL CLOCK menu appears on the screen.



(PIXEL CLOCK menu)

4 Press MENU/ENTER toward the ◄, ►, ▲ or ▼ mark to adjust "TRACKING" and "PHASE".

- Adjust the tracking and phase of the video screen being projected. To adjust the phase, first check for correct tracking adjustment.

Adjustment item	Button	Adjustment content
TRACKING	◄	The screen shrinks laterally (right-to-left). (–255 ← 0 ← +255)
	►	The screen extends laterally (right-to-left). (–255 → 0 → +255)
PHASE		Set to a position where text appears clear.
	▲	(–127 → 0 → +127)
	▼	(–127 ← 0 ← +127)

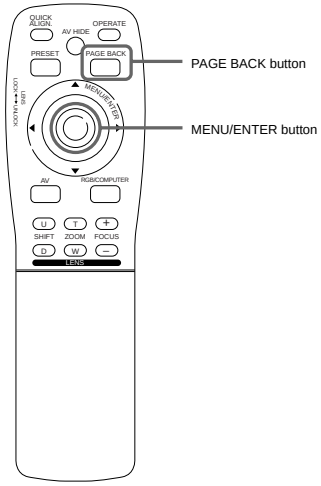
* To reset to the factory-set adjustment values, press the remote control's PRESET button.
Tracking and phase are reset to the factory-set adjustment values.

■ To return to the main menu, press the PAGE BACK button. To finish the main menu, press PAGE BACK again.

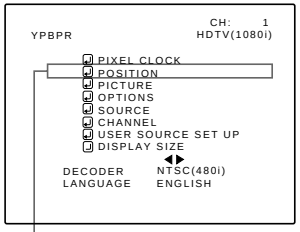
- To finish the menu display from the submenu display (PIXEL CLOCK menu), press PAGE BACK twice.

Adjusting the Screen Position

■ Remote control unit



■Main menu



Submenu item (POSITION)

Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

Adjust the position of the screen if it is displaced.

1 Press the MENU/ENTER button.

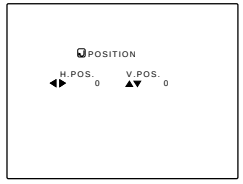
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "POSITION".

- The selected item (displayed in text) is shown in magenta color on the screen.

3 Press the MENU/ENTER button.

- The submenu items of the POSITION menu appear on the screen.



(POSITION menu)

4 Press MENU/ENTER toward the ◄, ►, ▲ or ▼ mark to adjust "H. POS." and "V. POS.".

- Adjust the horizontal and vertical positions of the video picture screen being projected.

Adjustment item	Button	Adjustment content
H. POS.	◄	The screen moves to the left. (–255 ← 0 ← +255)
	►	The screen moves to the right. (–255 → 0 → +255)
V. POS.	▲	The screen moves upwards. (–120 → 0 → +120)
	▼	The screen moves downwards. (–120 ← 0 ← +120)

* To reset to the factory-set adjustment values, press the remote control's PRESET button. H. POS. and V. POS. are reset to the factory-set adjustment values.

■ To return to the main menu, press the PAGE BACK button. To finish the main menu, press PAGE BACK again.

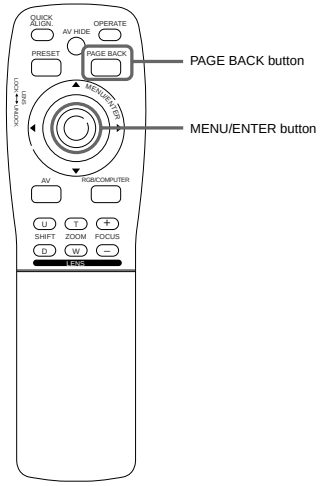
- To finish the menu display from the submenu display (POSITION menu), press PAGE BACK twice.

No.51666

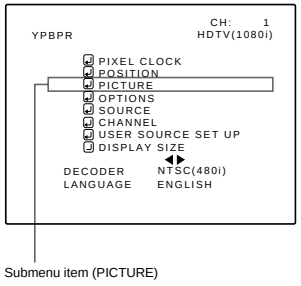
DLA-M4000LU
DLA-M4000LE

Adjusting Picture Quality

■ Remote control unit



■ Main menu



Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Adjustment items (on the PICTURE menu) are different when AV signals are input and when computer-related signals are input.

Adjust brightness, contrast, etc. so you have the desired screen. Adjustment items (on the PICTURE menu) are different when video-related signals are input and when computer-related signals are input.

1 Press the MENU/ENTER button.

- The main menu appears on the screen.

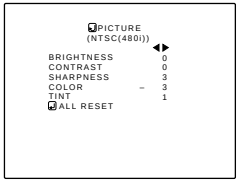
2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, “PICTURE”.

- The selected item (displayed in text) is shown in magenta color on the screen.

3 Press the MENU/ENTER button.

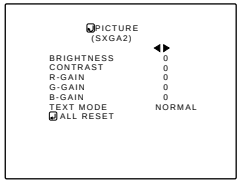
- The submenu items of the PICTURE menu appear on the screen.

■ When AV signals are input



(Video-image PICTURE menu)

■ When computer-related signals are input



(Computer-image PICTURE menu)

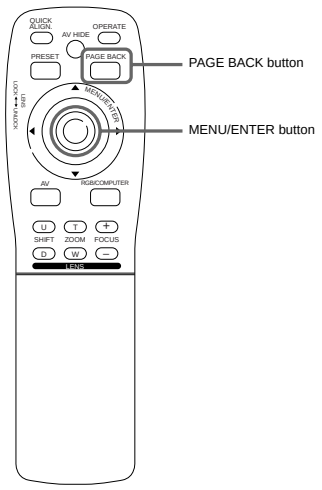
4 Press MENU/ENTER toward the ▲ or ▼ mark to select the item to adjust.

- The selected item (displayed in text) is shown in magenta color.

(To be continued on the next page)

Adjusting Picture Quality (Cont.)

■Remote control unit



■Submenu items

[PICTURE menu]

Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Adjustment items (on the PICTURE menu) are different when AV signals are input and when computer-related signals are input.

5 Press MENU/ENTER toward the ◄ or ► mark to adjust the selected item.

■For video system input

- To adjust multiple items, repeat steps 4 and 5.
- To reset all items (to factory-set adjustment values, “0”), press MENU/ENTER toward the ▲ or ▼ mark to select “ALL RESET”, and press MENU/ENTER.
- To reset only the selected items (ALL RESET excluded) to the factory-set adjustment value, press the remote control’s PRESET button. The selected item is reset to the factory-set adjustment value.

Adjustment item	Button	Adjustment content
BRIGHTNESS	◄	Gets darker. (–30 ← 0 ← +30)
	►	Gets brighter. (–30 → 0 → +30)
CONTRAST	◄	Gets lower. (–30 ← 0 ← +30)
	►	Gets higher. (–30 → 0 → +30)
SHARPNESS	◄	Gets softer. (0 ← 7)
	►	Gets sharper. (0 → 7)
COLOR	◄	Gets softer. (–30 ← 0 ← +30)
	►	Gets deeper. (–30 → 0 → +30)
TINT	◄	Gets reddish. (–30 ← 0 ← +30)
	►	Gets greenish. (–30 → 0 → +30)
ALL RESET	MENU/ ENTER	Resets all adjustment values of items on the PICTURE menu to the factory-set values (0).

Notes

- The adjustment item, TINT, is displayed only for NTSC system. It is not displayed (cannot be adjusted) when PAL or SECAM system signals are input.
- When video signals are input to the COMPUTER IN-2 terminal, adjustment items “COLOR” and “TINT” are indicated but cannot be adjusted.

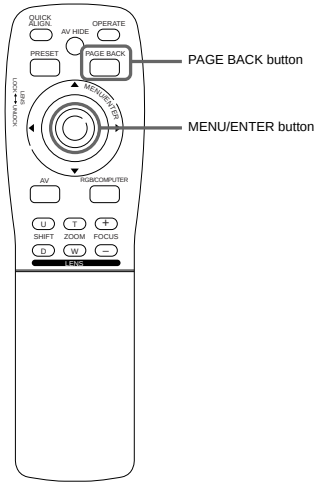
■For computer system input

- To adjust multiple items, repeat steps 4 and 5.
- To reset all items (to factory-set adjustment values, “0”), press MENU/ENTER toward the ▲ or ▼ mark to select “ALL RESET”, and press MENU/ENTER.
- To reset only the selected items (ALL RESET excluded) to the factory-set adjustment value, press the remote control’s PRESET button. The selected item is reset to the factory-set adjustment value.

(To be continued on the next page)

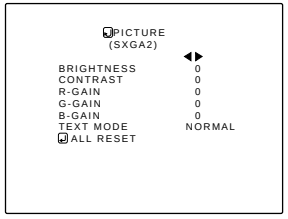
Adjusting Picture Quality (Cont.)

■Remote control unit



■Submenu items

[PICTURE menu]



Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Adjustment items (on the PICTURE menu) are different when AV signals are input and when computer-related signals are input.

Adjustment item	Button	Adjustment content
BRIGHTNESS	◄	Gets darker. (–30 ← 0 ← +30)
	►	Gets brighter. (–30 → 0 → +30)
CONTRAST	◄	Gets lower. (–30 ← 0 ← +30)
	►	Gets higher. (–30 → 0 → +30)
R-GAIN	◄	Gets less reddish. (–30 ← 0 ← +30)
	►	Gets more reddish. (–30 → 0 → +30)
G-GAIN	◄	Gets less greenish. (–30 ← 0 ← +30)
	►	Gets more greenish. (–30 → 0 → +30)
B-GAIN	◄	Gets less bluish. (–30 ← 0 ← +30)
	►	Gets more bluish. (–30 → 0 → +30)
TEXT MODE		Sets a mode which allows easy text reading.
	◄	NORMAL ← TEXTE1 ← TEXTE2
	►	NORMAL → TEXTE1 → TEXTE2
ALL RESET	**MENU/ ENTER**	Resets all adjustment values of items on the PICTURE quality menu to the factory-set status (adjustment values: 0, text mode: NORMAL).

Note

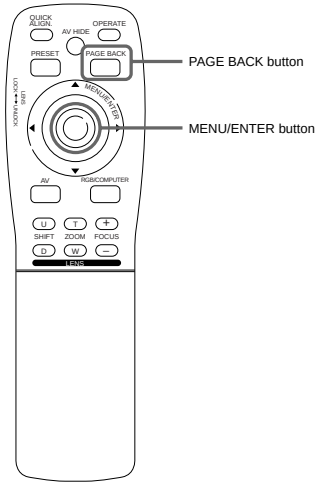
- There is a relationship between the adjustment of items R-GAIN, G-GAIN, and B-GAIN and that of item CONTRAST. For example, when adjustment values are : R-GAIN: 0, G-GAIN: 5, B-GAIN: 0, and CONTRAST: 0, changing CONTRAST to 1 changes the adjustment values as follows: R-GAIN: 1, G-GAIN: 6, and B-GAIN: 1.
  Also, when the adjustment value of any of R-GAIN, G-GAIN, and B-GAIN has reached -30 (minimum) or +30 (maximum), CONTRAST cannot be adjusted to any higher value. For example, when R-GAIN is 0, G-GAIN is 5, B-GAIN is 0, and CONTRAST is 0, increasing CONTRAST allows the other adjustment values to increase until R-GAIN: 25, G-GAIN: 30, and B-GAIN: 25, then CONTRAST becomes 25 and cannot be adjusted to any higher value.

● To return to the main menu, press the PAGE BACK button. To finish the main menu, press PAGE BACK again.

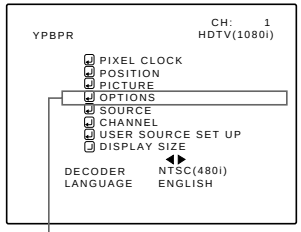
- To finish the menu display from the submenu display (PICTURE menu), press PAGE BACK twice.

Setting and Adjusting Other Functions (OPTIONS)

■ Remote control unit



■ Main menu



Submenu item (OPTIONS)

Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items to be set (adjusted) are different when AV signals are input and when computer system signals are input.

The following optional functions can be set (adjusted).

- MENU AUTO OFF
- LINE DISPLAY
- RIGHT LEFT REV.
- TOP BOTTOM INV.
- CLAMP
- RESIZE
- BACK COLOR
- COLOR TEMPERATURE
- ASPECT CHANGE
- SLEEP TIME
- LAMP TIME

Memo

About the lamp use time

The lamp use time indicates the accumulated used hours of the light-source lamp and cannot be set or adjusted. When you have replaced with a new light-source lamp, reset the lamp use time.

Note

- The RESIZE function works for only computer system input. It does not work for video system input.

1 Press the MENU/ENTER button.

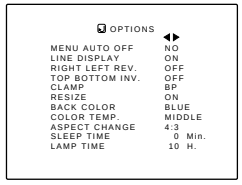
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, “OPTION”.

- The selected item (displayed in text) is shown in magenta color on the screen.

3 Press the MENU/ENTER button.

- The submenu items of the OPTIONS menu are displayed.



(OPTIONS menu)

4 Press MENU/ENTER toward the ▲ or ▼ mark to select an item to set (adjust).

- The selected item (displayed in text) is shown in magenta color.

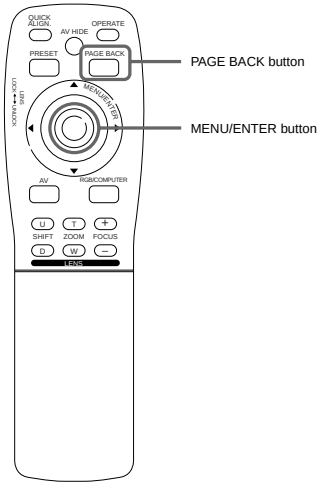
(To be continued on the next page)

No.51666

DLA-M4000LU
DLA-M4000LE

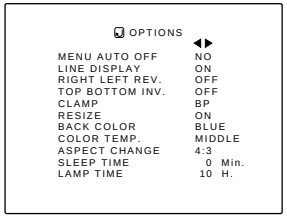
Setting and Adjusting Other Functions (OPTIONS) (Cont.)

■Remote control unit



■ Submenu items

[OPTIONS menu]



Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items to be set (adjusted) are different when AV signals are input and when computer-system signals are input.
- When you turn the RESIZE function ON, allowing the screen to be enlarged virtually to its full size for projection (resizing display), the video image (resolution) becomes coarse.

5 Press MENU/ENTER toward the ◄ or ► mark to select an item to set (adjust).

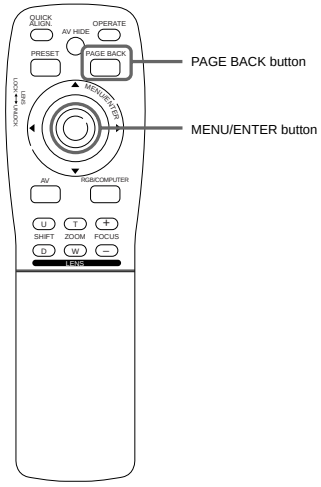
- To adjust multiple items, repeat steps 4 and 5.

Adjustment item	Button	Adjustment content
MENU AUTO OFF	◄/►	Sets whether to clear the menu display automatically a fixed time later or not. (Factory setting : NO) **YES**: Clears the display automatically in about 25 seconds. **NO** : Does not clear the display automatically. **NO** ◄——► **YES**
LINE DISPLAY	◄/►	Sets whether to show the line display (Y/C, VIDEO, etc.) at the top of the projected screen or not. (Factory setting : ON) **OFF**: Does not show the line display. **ON** : Shows the line display. (The line display disappears about 5 seconds after it is shown.) **OFF** ◄——► **ON**
RIGHT LEFT REV.	◄/►	Reverses video image right-to-left. (Factory setting : OFF) **OFF**: For the front method **ON** : For upside hanging from the ceiling **OFF** ◄——► **ON**
TOP BOTTOM INV.	◄/►	Inversus video image upside-down. (Factory setting : OFF) **OFF**: For normal set-up **ON** : For upside hanging from the ceiling **OFF** ◄——► **ON**
CLAMP	◄/►	Sets the clamp pulse's position at the back porch (BP) or on the sink tip (ST). Normally, the clamp is used at BP. If, with some PCs or workstations, the screen becomes unstable such as being too dark or too bright, try to switch to ST. (factory setting: BP) **BP** : The clamp pulse is positioned at the back porch. **ST** : The clamp pulse is positioned on the sink tip. **BP** ◄——► **ST**
RESIZE	◄/►	When the number of pixels (resolution) sought by the input video is smaller than that (resolution) of D-ILA device, the video image is then enlarged to virtually full screen size of D-ILA device and projected (resizing display). (Factory setting : ON) Does not work (cannot be set) for video system input. **OFF** : Does not enlarge the video image for projection. When the number of pixels sought by video image is smaller than that of D-ILA device, projection takes place on a small screen size with a black area around the screen. **ON** : Enlarges virtually to the full screen size of D-ILA device for projection (resizing display). **OFF** ◄——► **ON**

(To be continued on the next page)

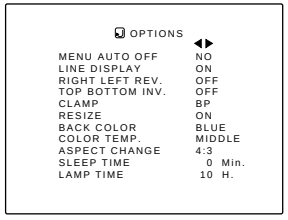
Setting and Adjusting Other Functions (OPTIONS) (Cont.)

■Remote control unit



■ Submenu items

[OPTIONS menu]



Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items to be set (adjusted) are different when AV signals are input and when computer-system signals are input.

Adjustment item	Button	Adjustment content
BACK COLOR	◄/►	Sets background color when there is no input signal. (Factory setting : BLUE) **BLUE** ⟷ **CYAN** ⟷ **BLACK** ⟷ **GREEN** **YELLOW** ⟷ **RED** ⟷ **MAGENTA**
COLOR TEMP.	◄/►	Sets the color temperature of the video image being projected. Make adjustment when the image becomes reddish or bluish. (Factory setting : MIDDLE) **LOW** : Color temperature decreases (video image becoming reddish). **MIDDLE** : Results in middle color temperature. **HIGH** : Color temperature increases (video image becoming bluish). **LOW** ⟷ **MIDDLE** ⟷ **HIGH**
ASPECT CHANGE	◄/►	Sets the vertical-to-horizontal ratio (4 : 3 or 16 : 9) of the video image projected. (Factory setting : 4 : 3) **4 : 3** : The aspect ratio of the screen becomes 4 : 3. Set it to 4 : 3 for video of NTSC, NTSC4.43, PAL, SECAM. **16 : 9**: The aspect ratio of the screen becomes 16 : 9. Set it to 16 : 9 for Hi-Vision devices (W-VHS VCR, etc.) **4 : 3** ⟷ **16 : 9**
SLEEP TIME	◄/►	Sets the length of sleep time which automatically brings the projector into stand-by state. You can select one of the following sleep times : 10 minutes, 20 minute, 30 minutes, 60 minutes and 0. (Factory setting : 0 minutes) **10** ⟷ **20** ⟷ **30** ⟷ **60** ⟷ **0** If set to "0" minutes, this function does not work.

● To return to the main menu, press the PAGE BACK button. To finish the main menu, press PAGE BACK again.

- To finish the menu display from the submenu display (OPTIONS menu), press PAGE BACK twice.

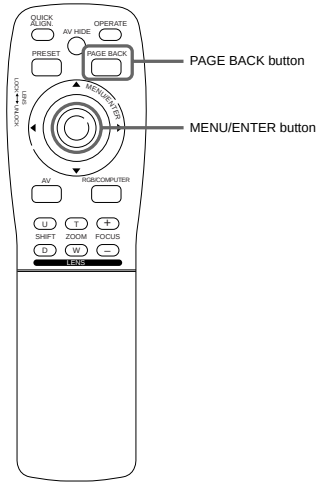
Note

- When you view a conventional (normal) 4 : 3 video picture, which is not wide video picture, on the projector's screen the aspect change function, the upper and lower parts of the video picture become partially invisible. View such an original video picture in 4 : 3 mode, respecting the producer's intention.

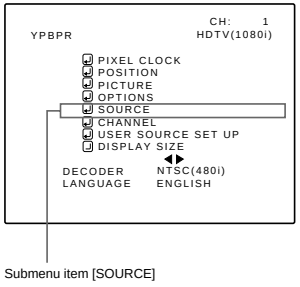
No.51666

Changing (Setting) the Source

■ Remote control unit



■Main menu



Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 19.

Normally, use the source setting in AUTO. If use in AUTO is unstable such as color not appearing, the screen being disturbed or the screen being intermitted, set to the dedicated source (forced mode) in accordance with the input signal.
Also, USER mode, which is a user-dedicated source, is available.

- When shipped from the factory, the source settings are as follows:

Input mode	Factory setting	Input mode	Factory setting
VIDEO	NTSC(480i)	RGB 1	AUTO
Y/C	NTSC(480i)	RGB 2	AUTO
Y, PB/B-Y, PR/R-Y	AUTO	—	—

Notes

- Depending on the signal from a device connected, adjustment may be needed after a dedicated source is set. If that is the case, adjust the appropriate items.
- When the input mode (SOURCE) is VIDEO or Y/C, and if AUTO is set, the automatic detecting function may work, possibly causing the screen to be intermitted or disturbed. In that case, set to a dedicated source (forced mode).
- When special effect playback (fast-forward/twice-speed/triple-speed) is performed on a video deck, etc., the picture may be disturbed or intermitted, depending on the device.
- When inputting 480p or 720p-DTV-format signal in COMPUTER2 input mode, use the dedicated source mode “SDTV(480p)” or “HDTV1(720p)”. (At AUTO, 480p or 720p signal can not be detected.)

1 Press the MENU/ENTER button.

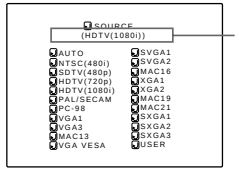
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select “SOURCE”.

- The selected item (displayed in text) is shown in magenta color.

3 Press the MENU/ENTER button.

- The submenu items, SOURCE menu, appears on the screen.



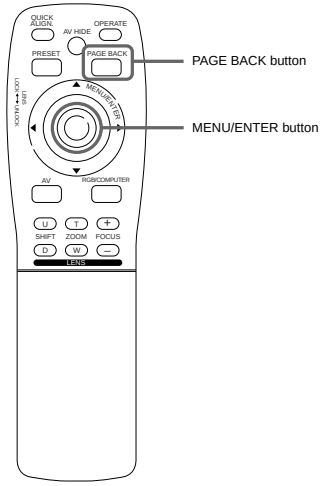
(SOURCE menu)

4 Press MENU/ENTER toward the ◄, ►, ▲ or ▼ mark to select a source from the “SOURCE” items.

- The selected item (text display) is shown in magenta color.

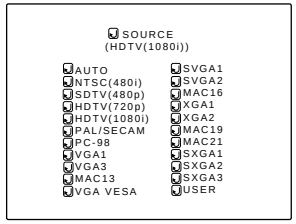
Changing (Setting) the Source (Cont.)

■ Remote control unit



■Submenu

[SOURCE setup menu]



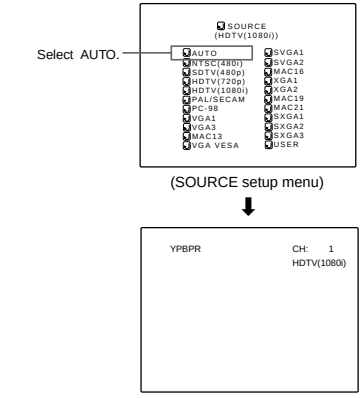
Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 19.

5 Press MENU/ENTER to set (fix).

■ When a source setting “AUTO” is selected:

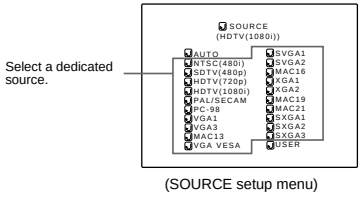
Under “SOURCE” shown at the top of the screen, AUTO is displayed in ( ), and the menu will automatically be cleared, finishing the setting procedure. Then, information on the input source will be shown for about 5 seconds.



■ When a source setting “DEDICATED SOURCE” is selected:

Under “SOURCE” shown at the top of the screen, a dedicated source name is displayed in ( ), and the setting procedure is finished.

- To finish the menu display, press PAGE BACK twice. (The display goes back to the main menu with the first press, and the main menu is cleared with the second press.)



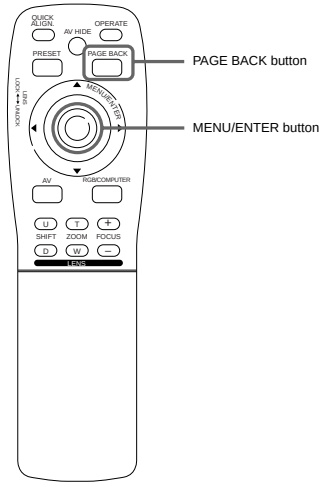
(To be continued on the next page)

No.51666

DLA-M4000LU
DLA-M4000LE

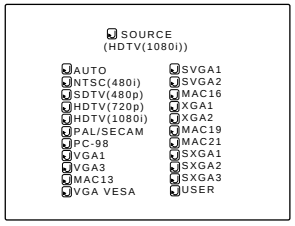
Changing (Setting) the Source (Cont.)

■ Remote control unit



■Submenu

[SOURCE setup menu]



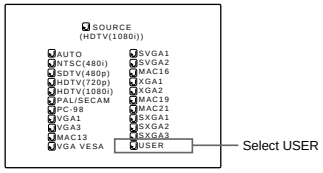
Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 19.

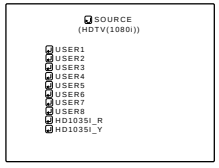
■ When a source setting "USER" is selected:

The "USER SOURCE setup menu" is displayed.

- On the "USER SOURCE setup menu (user)", a source created by the user can be selected.
- To select a user area, it must already be user-registered with the "USER SOURCE setup menu".



(SOURCE setup menu)



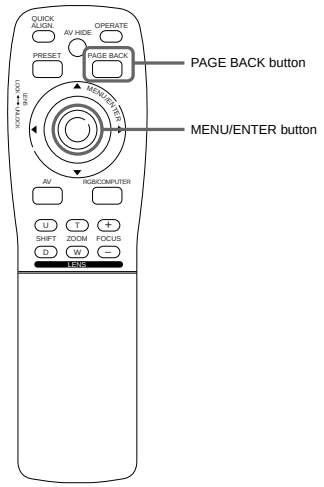
(SOURCE setup menu (user))

1. **Press MENU/ENTER toward the ▲ or ▼ mark to select a user area.**
   - The selected item (text display) is shown in magenta color.
2. **Press MENU/ENTER down to set a source.**
   - By having a source set, the source for the projector switches to the setting registered to the user source.

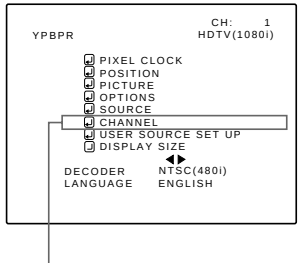
■ **Pressing PAGE BACK twice will bring you back to the main menu. To finish the main menu, press PAGE BACK again.**

Setting Up Channels

■ Remote control unit



■Main menu



Submenu item [CHANNEL]

Notes

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.
- Items that can be set are different when video signals are input and when computer signals are input.
- For dedicated source signals (corresponding frequency, etc.) for computer signals, see page 19.

When you set up channels, you can select a line and a multiple of sources (up to 30) for each channel. If you are using a switcher and set switcher numbers, you can also select each channel from the switcher side.

Memo

- With multiple sources having been set on channels, when a channel is selected, incoming signal is automatically checked and switched to one of the sources registered on the channel.
  If a matching source is not found among the registered sources, all other available sources are searched to find a matching source.

1 Press the MENU/ENTER button.

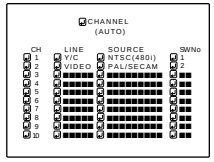
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, "CHANNEL".

- The selected item (text display) is shown in magenta color.

3 Press the MENU/ENTER button to set.

- A submenu item, "CHANNEL setup/selection menu", appears on the screen.
- If no "LINE", "SOURCE" or "SWNo" item is registered, unregistered characters (■) are displayed on the screen.



(CHANNEL setup menu)

4 Press MENU/ENTER toward the ▲ or ▼ mark to select the channel (CH) whose contents you want to change.

- The selected CH is shown in magenta color.

5 Press MENU/ENTER toward the ◄ or ► mark to select the item to set (LINE, SOURCE or SWNo).

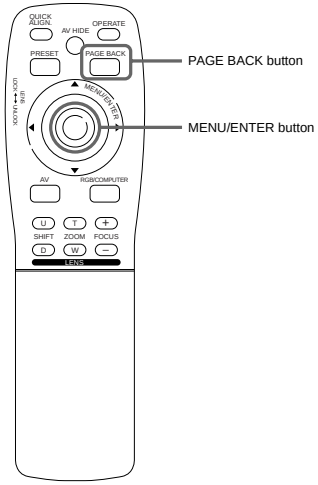
- The selected item is shown in magenta color.
- Unregistered channel items (LINE, SOURCE or SWNo) can also be selected. However, "LINE" and "SOURCE" need to be already set.

6 Press MENU/ENTER to set.

- Channel items LINE, SOURCE and SWNo) for the "CH" selected on the "CHANNEL setup • selection" menu are set.
- For how to set each item, see pages 48 to 51.

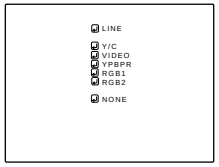
Setting Up Channels (LINE setup)

■ Remote control unit



■ When LINE is selected:

The "LINE selection menu" screen appears.



(LINE selection menu)

1 Press MENU/ENTER toward the ▲ or ▼ mark to select a line from the "LINE" items.

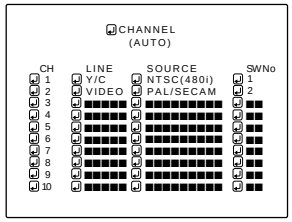
- The selected item (text display) is shown in magenta color.

2 Press the MENU/ENTER button to set.

- When you press MENU/ENTER, the "LINE" item shown in magenta color is selected, and the display goes back to the "Channel setup • selection" menu.
- If the "NONE" of "LINE" items is selected and MENU/ENTER is pressed, all the settings, "LINE", "SOURCE" and "SWNo", of the CH already selected will be cleared (erased).
  (If the selected channel is the same with the one in ( ) under the "CHANNEL" display at the top of the CHANNEL setup • selection menu, the registration or settings cannot be cleared.)

■ Pressing PAGE BACK twice will bring you back to the main menu. To finish the main menu, press PAGE BACK again.

■ CHANNEL setup • selection menu

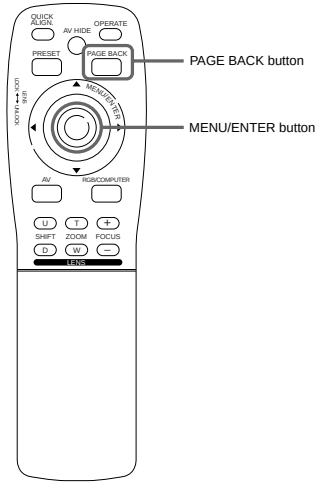


Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

Setting Up Channels (SOURCE setup)

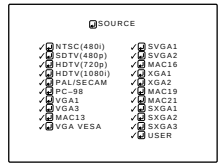
■ Remote control unit



■ When "SOURCE" is selected :

The "SOURCE registration" screen appears.

- To be able to display a menu, a "LINE" needs to be already registered.
- Sources already selected are indicated with check marks.



(SOURCE registration menu)

1 Press MENU/ENTER toward the ◄, ►, ▲ or ▼ mark to select a source from the "SOURCE" items.

- The selected item (text display) is shown in magenta color.

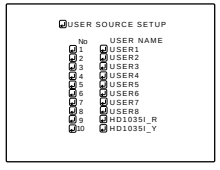
2 Press the MENU/ENTER button to set.

- When the item is set, a check mark is placed next to its source name, which is registered as a "SOURCE".
- If you place the cursor on a "SOURCE" item with a check mark attached and press MENU/ENTER, the check mark will disappear and the item will become unregistered as a "SOURCE" item. (If the selected channel is the same with the one in ( ) under the "CHANNEL" display at the top of the CHANNEL setup/selection menu, the registration or settings cannot be cleared.)

■ When "USER" is selected from "SOURCE registration menu" :

The "USER SOURCE registration menu" appears.

- Registered user sources are indicated with check marks.

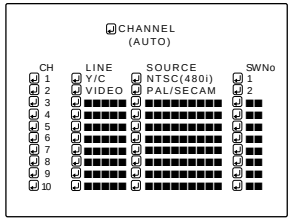


(USER SOURCE registration menu)

1. Press MENU/ENTER toward the ▲ or ▼ mark to select a source from the SOURCE items.

- The selected item (text display) is shown in magenta color.

■ CHANNEL setup • selection menu



Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

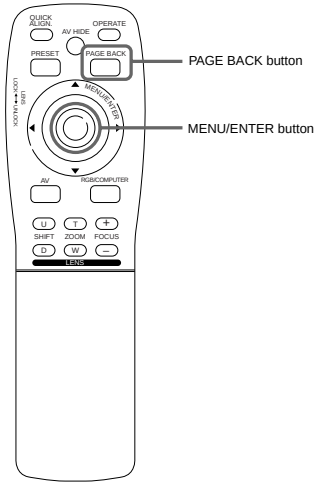
(To be continued on the next page)

No.51666

DLA-M4000LU
DLA-M4000LE

Setting Up Channels (SOURCE setup) (Cont.)

■ Remote control unit

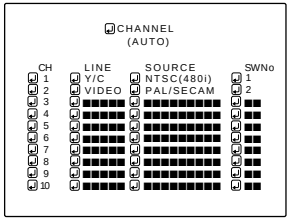


2.Press the MENU/ENTER button.

- When the item is set, a check mark is placed next to its user name, which is registered as a “SOURCE”.
- If you place the cursor on a “SOURCE” item with a check mark attached and press MENU/ENTER down straight, the check mark will disappear, making the item unregistered as a “SOURCE” item.

■ Pressing PAGE BACK twice will bring you back to the main menu. To finish the main menu, press PAGE BACK again.

■CHANNEL setup • selection menu

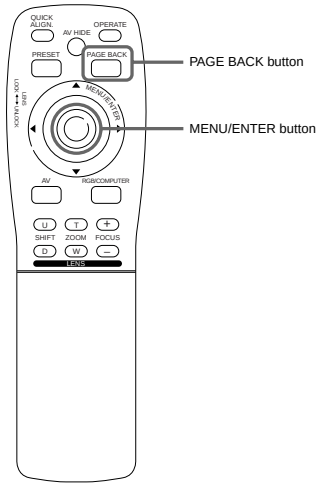


Note

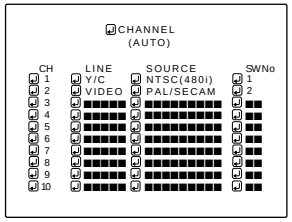
- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode. (If no line is registered, you cannot set any “SOURCE” item.)

Setting Up Channels (SWNo. setup)

■ Remote control unit



■CHANNEL setup • selection menu



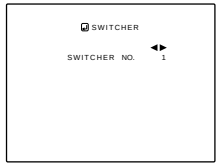
Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode. (If no line is registered, you cannot set any “SW No” item.)

■ When a switcher number “SWNo” is selected :

The “Switcher number setup menu” is displayed.

- To be able to display a menu, a “SOURCE” needs to be already set.



(SWITCHER No. setting menu)

1 Press MENU/ENTER toward the ◄ or ► mark to select a switcher number.

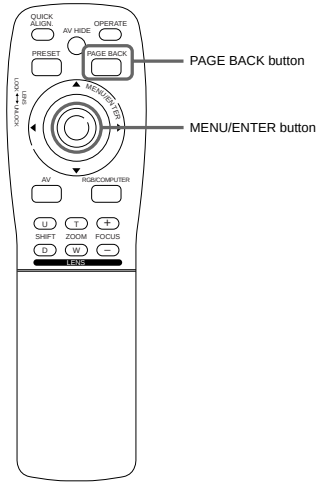
- Numbers that you can select from are numbers from 1 to 20 and characters “■■” that signify non-registration.
- If you press MENU/ENTER toward the ◄ mark, the number becomes smaller, and pressing the button toward the ► mark makes the number larger.
- If you select “ ■■”, “SWNo” will be deselected.
- If the selected channel is the same with the one in ( ) under the “CHANNEL” display at the top of the CHANNEL setup selection menu, the registration or settings cannot be cleared.

2 Press the PAGE BACK button to set.

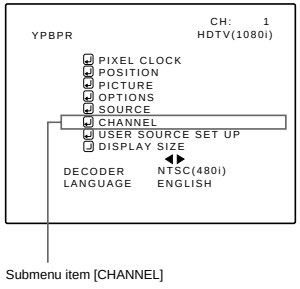
- When you press PAGE BACK, the switcher number is set, and the display returns to the “CHANNEL setup/selection menu”.

Changing Channels (CH Change)

■ Remote control unit



■Main menu



Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

Channels which have lines and sources registered can be switched. The channels can be switched by using either a direct channel or the “CHANNEL setup • selection” menu.

■ To switch channels using a “DIRECT CHANNEL”

1 Press PAGE BACK while no menu is displayed.

- A channel No. is displayed on the right upper area of the screen.
- A channel number where lines and sources are registered is displayed. (If such a channel is not available, AUTO will be selected.)

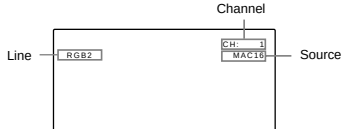
(Direct channel switching menu)

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a channel number.

- The numbers that you can select from are from 1 to 10 and AUTO.
- If you press MENU/ENTER toward the ▼ mark, the number becomes smaller, and pressing the button toward ▲ makes the number larger.
- Pressing PAGE BACK cancels the selection.

3 Press the MENU/ENTER button to set.

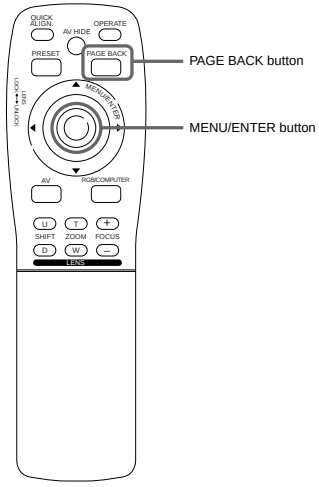
- The screen switches automatically to the line and source which are set for the channel.



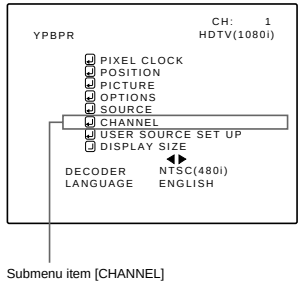
- If the source being input to the projector is not registered on the selected channel, a “?” mark is placed before the source name.

Changing Channels (CH Change) (Cont.)

■ Remote control unit



■Main menu



Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

■ To switch on the “CHANNEL setup - selection” menu :

1 Press the MENU/ENTER button.

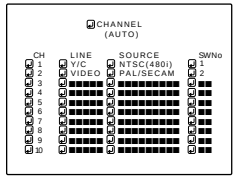
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, “CHANNEL”.

- The selected item (text display) is shown in magenta color.

3 Press the MENU/ENTER button to set.

- A submenu item, “CHANNEL setup • selection menu”, appears on the screen.



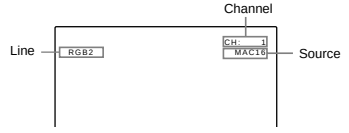
(CHANNEL setup • selection menu)

4 Press MENU/ENTER toward the ▲ or ▼ mark to select the channel (CH) you want to switch to.

- The selected CH is shown in magenta color.

5 Press the MENU/ENTER button to set.

- The line input, source and switcher number registered to the channel are selected.



- If the source being input to the projector is not registered on the selected channel, a “?” mark is placed before the source name.

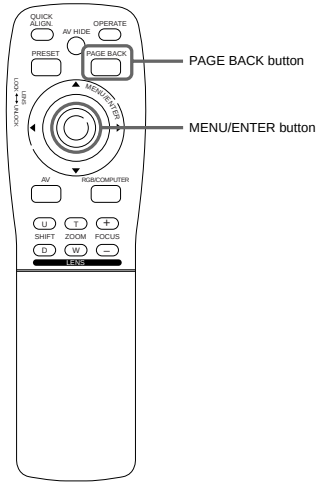
- To be able to select a channel, line input, source and switcher number need to be already registered.

No.51666

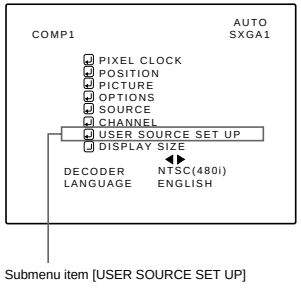
DLA-M4000LU
DLA-M4000LE

Setting Up (or Changing) User Sources

■ Remote control unit



■Main menu



Submenu item [USER SOURCE SET UP]

Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

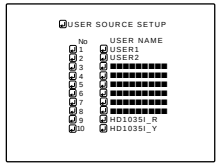
A maximum of 10 types of information can individually be registered regarding the source being input and projected through the line connection.

■ **Preparation**
With source setup “AUTO” selected, keep signal being input.

1 Press the MENU/ENTER button.
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, “USER SOURCE SETUP”.
- The selected item (text display) is shown in magenta color.

3 Press the MENU/ENTER button to set.
- A submenu item, “USER SOURCE SETUP menu” , appears on the screen.
- “■” is displayed for Nos which have no user source registered.



(USER SOURCE set up menu)

4 Press MENU/ENTER toward the ▲ or ▼ mark to select a “No” where no user registration has been made.
- The selected item (text display) is shown in magenta color.

5 Press the MENU/ENTER button to set.
- The source data of the line now selected is registered as a user source and a temporary user name is displayed.
- If you select and set on the No which has a source registered, the source is overwritten by a new source.

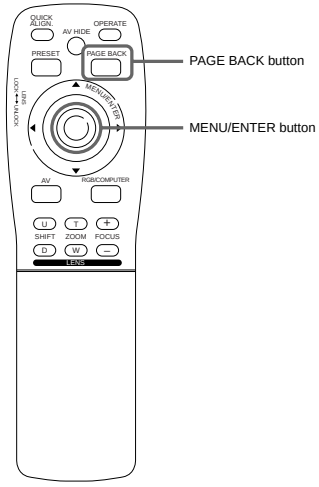
■ **To return to the main menu, press PAGE BACK. To finish the main menu, press PAGE BACK again.**

Note

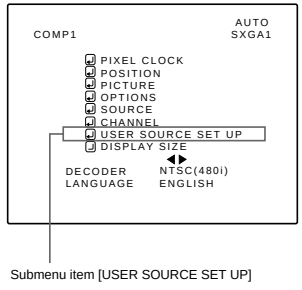
- When EXT. IN (Video, Y/C or YP_BP_R) is selected, the display size cannot be changed.

Setting Up (or Changing) User Sources (Cont.)

■ Remote control unit



■Main menu



Submenu item [USER SOURCE SET UP]

Note

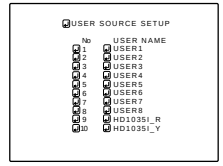
- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

To change the registered user source name.

1 Press the MENU/ENTER button.
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, “USER SOURCE SETUP”.
- The selected item (text display) is shown in magenta color.

3 Press the MENU/ENTER button to set.
- A submenu item, “USER SOURCE SETUP menu” , appears on the screen.



(USER SOURCE set up menu)

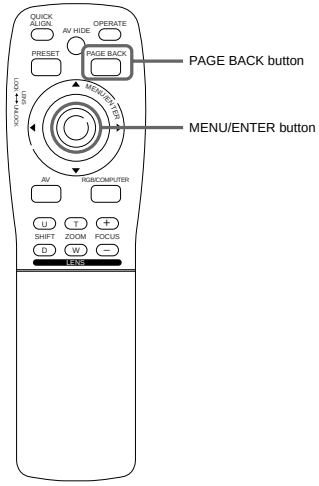
4 Press MENU/ENTER toward the ▲ or ▼ mark to select the number, “No”, of the user name to be changed.
- The selected item (text display) is shown in magenta color.

5 Press MENU/ENTER toward the ► mark to select the “USER NAME”.
- The selected item (text display) is shown in magenta color.
- To be able to select a “USER NAME”, a source needs to be already registered.

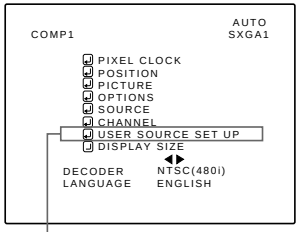
(To be continued on the next page)

Setting Up (or Changing) User Sources (Cont.)

■ Remote control unit



■Main menu



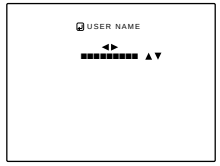
Submenu item [USER SOURCE SET UP]

Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

6 Press the MENU/ENTER button to set.

- The “USER NAME setup menu” is displayed.



(USER NAME setup menu)

1. Press MENU/ENTER toward the ◄ or ► mark to select positions where to enter characters.

2. Press MENU/ENTER toward the ▲ or ▼ mark to select positions where to enter characters.

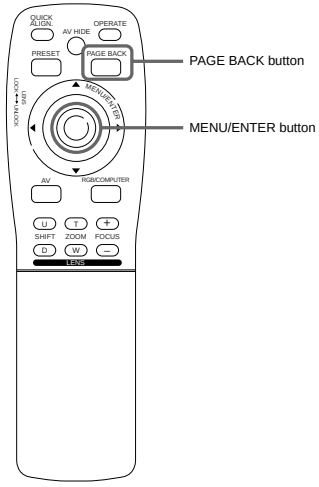
- You can select any characters from A to Z, 0 to 9, _ and space.

3. Press MENU/ENTER toward the ▲ or ▼ mark to select positions where to enter characters.

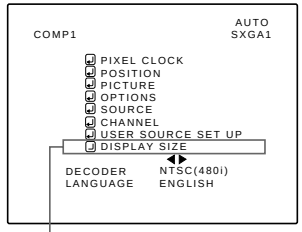
- The display returns to the “USER SOURCE SETUP” screen.
- To delete a user name, overwrite the user name with spaces. However, if this user name area is registered as a source to any other channel on the “CHANNEL setup • selection” menu, or if this user name area is selected in AUTO mode or dedicated (forced) mode, the user name cannot be deleted. The user name before change will be displayed.
- Up to 9 characters can be entered.

Setting Up (or Changing) the Display Size

■ Remote control unit



■Main menu



Submenu item [DISPLAY SIZE]

Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

In this section, the number of horizontal effective dots and that of vertical effective lines of the source being input are set.

1 Press the MENU/ENTER button.

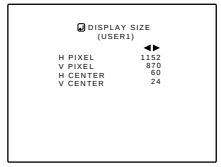
- The main menu appears on the screen.

2 Press MENU/ENTER toward the ▲ or ▼ mark to select a submenu item, “DISPLAY SIZE”.

- The selected item (text display) is shown in magenta color.

3 Press the MENU/ENTER button to set.

- A submenu item, “DISPLAY SIZE adjustment menu”, appears on the screen.



(DISPLAY SIZE adjustment menu)

4 Press MENU/ENTER toward the ▲ or ▼ mark to select an item to be adjusted.

- The selected item (text display) is shown in magenta color.

5 Press MENU/ENTER toward the ◄ or ► mark to adjust the item.

- To adjust other items, repeat steps **4** and **5**.

Memo

- It is recommended that you perform adjustments in the following order:
  1. Adjustment of H PIXEL and V PIXEL
  2. Automatic adjustment of QUICK ALIGNMENT
  3. Adjustment of H CENTER and V CENTER

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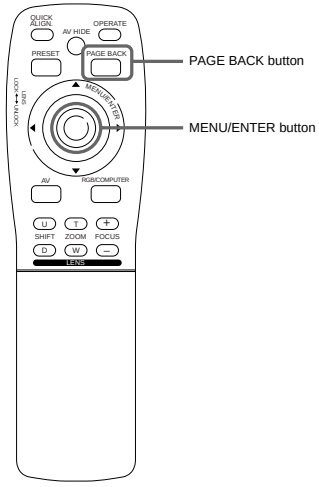
DLA-M4000LU
DLA-M4000LE

Setting Up (or Changing) the Display Size (Cont.)

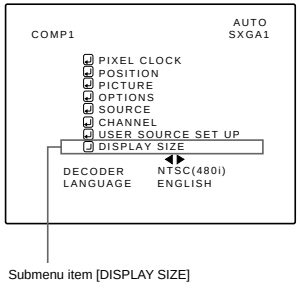
■ Remote control unit



Adjustment item	Contents of adjustment
H PIXEL	Adjusts the number of horizontal effective dots. Adjustment value (640↔1360)
V PIXEL	Adjusts the number of vertical effective dots. Adjustment value (350↔1024)
H CENTER	Adjusts the horizontal display position. Adjustment value (0↔639)
V CENTER	Adjusts the horizontal display position. Adjustment value (1↔511)

■ To return to the main menu, press PAGE BACK. To finish the main menu, press PAGE BACK again.

■Main menu



Note

- The selected item is shown in magenta color. Items shown in gray color cannot be operated or set in the current mode.

Filter Maintenance and Light-Source Lamp Replacement

Cleaning and Replacing the Filter

The filters should be cleaned periodically. If they are heavily stained, do not become clean if cleaned, or are damaged, replace them with new filters (Parts number: LC30505); otherwise, dirt and dust may get inside, possibly causing an adverse effect on the screen and preventing you from enjoying clear pictures.

■ The projector has two filters installed, one on the right side and the other on the back.

1 Bring the projector into stand-by state, and turn off the MAIN POWER switch.

Put the projector into stand-by, and make sure the STAND BY indicator is lit, then tun off the MAIN POWER switch. After that, disconnect the power cord from the wall outlet and the projector. For detailed procedures, refer to “Turning off the power” (page 25).

Note

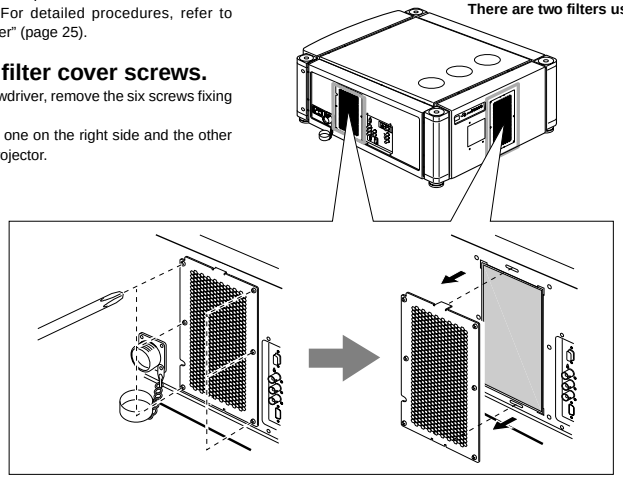
- If the filter is clogged with dirt, etc., the projector goes into an emergency mode (the EMERGENCY indicator blinks). So, clean the filter periodically. For the emergency mode, refer to pages 8 and 24.

2 Remove the filter cover screws.

Using a Phillips screwdriver, remove the six screws fixing each filter.

Two filters are used, one on the right side and the other on the back of the projector.

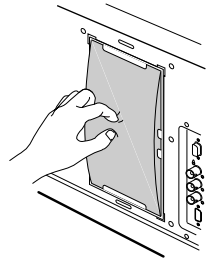
There are two filters used.



3 Remove the filters.

To remove the filter, pinch the center portion of the filter with your fingers and pull it toward you.

(The filter is held by four tabs.)



(To be continued on the next page)

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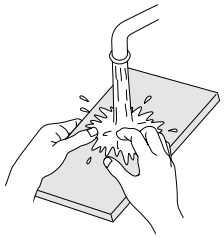
Cleaning and Replacing the Filter (Cont.)

4 Clean the filters.

Wash the filter in water with neutral detergent, and dry it in the shade.



5 Reinstall the filters.

To reinstall the filters to the projector, reverse the procedure for removing . Finally, be sure to reinstall the filter covers.

Notes

- Install the filters correctly; otherwise the projector will not operate normally.
- If the filters and/or filter holders are damaged, the projector may fail to operate. Then, replace with new parts.

CAUTIONS

- **Put on rubber gloves when using neutral detergent.**
- **After you have washed the filter in water, make sure the filter is completely dry before reinstalling it. Otherwise, electric shock or malfunction could occur.**
- **Do not clean the filter using a vacuum cleaner. Since the filter is soft, it may be sucked into the vacuum cleaner or damaged.**

About Light-Source Lamp Replacement

The light-source lamp has its service life. It is approximately 1000 hours.

When the light-source lamp approaches the end of its service life, its degradation progresses rapidly. When the lamp's used hours exceed 900 hours, the projector's LAMP indicator comes on. Also, at the start of projection (lamp energized), the message "REPL.-LAMP" appears on the projection screen for about two minutes. Then, the light-source lamp needs to be replaced. When lamp's service has reached 1000 hours, the projector's LAMP indicator starts blinking. The specified lamp replacement period is 1000 hours, but depending on use conditions, the replacement period may vary. If video image is dark and its color tint is extraordinary even after you have adjusted color tint and brightness, replace the light-source lamp a little earlier.
For replacing the light-source lamp, consult the dealer where you purchased your projector or a local service center.

Troubleshooting

Solutions to common problems related to your projector are described here. If none of the solutions presented here solves the problem, unplug the projector and consult a authorized dealer or service center.

Symptom	Probable cause	Corrective action	Page
Power is not supplied.	• Is the power cord disconnected?	• Insert the power cord (plug) firmly.	23
	• Is the main power switch turned on?	• Turn on the MAIN POWER switch.	25
	• Is the correct power voltage used?	• Check that AC220V is supplied.	3, 65
	• Has the breakertripped open?	• Check that the breaker is closed.	——
	• Has the lamp protective function activated? (This can occur if the power is shut down due to a power failure, etc.)	• Wait until the lamp has cooled down. (Turn on the main power sand let the fans cool the lamp.) About 10 minutes later, press OPERATE on the remote control.	——
Light is not emitted, or light level is low.	• Is the lens cap removed?	• Remove the lens cap.	23
	• Is the lamp life near its end?	• Check the lamp use time on the menu, and if the lamp life is near its end, arrange for a replacement lamp, or replace a little earlier.	41, 59
	• Has the projector been moved from its installed place?	• Check the installed position.	——
With power on, operation starts but stops in a few minutes.	• Is the air intake or exhaust area blocked?	• Turn off the MAIN POWER switch, remove any blocking objects, and turn on the MAIN POWER switch again.	8, 9, 16
Video image does not appear.	• Is the correct input selected?	• Select the correct inputs with the AV and RGB buttons.	26
	• Are connected devices connected correctly?	• Connect connected devices correctly.	20, 21
	• Are signals being supplied from the connected devices?	• Set connected devices correctly.	——
	• Are input signals (scanning frequency, etc.) appropriate?	• Check if the signal is correct as input (scanning frequency, etc.). Input the appropriate signal.	19
	• Is the source setting correctly selected? Isn't a wrong source (forced mode) selected?	• Set the source setting to AUTO or to the correct dedicated source (forced mode).	44, 46
Video image dims.	• Is brightness adjusted correctly?	• Adjust brightness on the menu.	38, 40
	• Is focus adjusted correctly?	• Adjust focus with the remote control's FOCUS (+/–) buttons.	27, 30
	• Is distance too short or too long?	• Set the projector at the correct distance.	18
Color is poor or unstable.	• Are TRACKING and PHASE adjusted correctly?	• Adjust TRACKING and PHASE on the menu.	30, 36
	• Is picture quality (color density, etc.) adjusted correctly?	• Adjust picture quality on the menu.	38, 40
	• Is the correct CLAMP selected?	• Select the correct CLAMP on the OPTION MENU.	41, 42

(To be continued on the next page)

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Troubleshooting (Cont.)

Symptom	Probable cause	Corrective action	Page
During video replay, video image sometimes is disturbed	• have Installation adjustment been performed?	• For installation, consult the dealer where you purchased the projector or a local service center.	——
Image color is poor or image is disturbed	• Is picture quality (color desity, etc.) adjusted correctly?	• Adjust picture quality on the menu.	38, 40
	• Is the correct broadcast system (color system) selected?	• Set the broadcast system (color system) to AUTO.	34
	• Are signals (scanning frequency, etc.) to connected devices appropriate?	• Check if the signal is appropriate (scanning frequency, etc.), and input the appropriate signal.	19
	• Is the source setting correctly selected? Isn't a wrong source (forced mode) selected?	• Set the source setting to AUTO. If the problem still persists, set it to the correct dedicated source (forced mode).	44 ~ 46
Specific colors fail to be displayed	• Are specifications of the signal being input matching those of the video input card?	• Check specifications of both signal being input and video input card.	——
	• Is the input cable connected correctly?	• Check cable connections.	21
	• Has the lamp's life come to its end?	• Check the used lamp hours on the menu, and if the lamp life is near its end, consult the dealer where you purchased the projector or a local service center.	60
The upper part of the video image bows or distorts.	• While computer system signal is input, isn't a sync signal for composite sync (Cs) or G on sync being input?	• Input separate sync signals for vertical sync (V) and horizontal sync (H) signals.	10
	• Isn't signal with much jitter or skew distortion being input to a video deck?	• Input signals with little jitter or distortion.	——
	• Is the source setting correctly selected? Isn't a wrong source (forced mode) selected?	• Set the source setting to AUTO. If the problem still persists, set it to the correct dedicated source (forced mode).	44 ~ 46
	• Have the channel's setup contents been changed?	• Check the setup contents been changed.	47 ~ 51
The projection position on the screen has shifted.	• Have the channel's setup contents been changed?	• Check the setup contents of the channel and correct them if necessary.	47 ~ 51
	• Is sync signal being input correctly?	• Check sync signal and related connection.	10
	• Has the projector been moved from its installed place?	• Check the installed position.	——
Video image suddenly go out.	• Aren't video turned off by pressing the remote control's AV HIDE button?	• Press the remote control's AV HIDE button to turn video on.	12
	• Are all color video signals being input?	• Check signals and connections.	19 ~ 23

Symptom	Probable cause	Corrective action	Page
Lens shift adjustment is not possible.	• Is the shift center lock pin for shipment left attached?	• Remove the shift center lock pin, and then make adjustments. (For how to remove the shift center lock pin, consult the dealer where you purchased the projector or a local service center.)	16
Remote control unit does not work.	• Are batteries installed correctly?	• Match the polarities of batteries correctly (+ to + and - to -).	13
	• Are batteries exhausted?	• Replace with new batteries.	13
	• Is there a shielding object between the remote control unit and the remote sensor?	• Remove any shielding objects.	——
	• Is the distance too long?	• Use the remote control unit at a nearer point.	22
	• Is the remote control's LENS LOCK↔UNLOCK switch set to LOCK?	• Set the remote control's LENS LOCK↔UNLOCK switch to UNLOCK?	12

■ When the emergency indicator starts blinking:

Refer to the CAUTION and NOTES on page 24.

* This projector is equipped with a microcomputer that may operate abnormally due to interference from external components. If this happens, turn off the main power and disconnect the power cord from the wall AC outlet. Then reconnect the power cord to AC outlet and turn on the main power again.
(For the turning on and off the power, see pages 25)

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Specifications

Optical mechanism system

• Projection method	3D-ILA device, 1 lens, 3 primary color optical shutter method
• D-ILA device	0.9" measured diagonally (1365 ×1024 pixels) × 3 (Total number of pixels : 4,193,280)
• Projecting lens	GL-M4023SZ 3:1~7:1 zoom lens
(separately available)	GL-M4015S 1.5:1 fixed focus lens
• Screen size	60" to 300" [recommended] to 600" [maximum] measured diagonally (*with aspect ratio : 4 : 3)
• Light-source lamp	1.6 KW xenon lamp

Electrical system

• Color system	NTSC, NTSC4.43, PAL, SECAM (* Automatic switching / manual switching)
• Resolution	1365 × 1024 dots (*S-XGA full resolution, during RGB input)
	1000TV lines (*Horizontal resolution, aspect ratio 4 : 3, during video input)
• Scanning frequency	Horizontal frequency : 15 kHz ~ 82 kHz
	Vertical frequency : 50 Hz ~ 78 Hz

Input / output

[EXT. IN (AV IN input)] * The Y/C (S-video) and VIDEO (composite video) signals can be input with the video board installed.

• Y/C
1-line, mini-DIN 4 pin × 1 (* With the video board, separately available, installed)
Y (luminance signal) : 1V(p-p), 75Ω (negative sync)
C (chroma signal) : 0.286V(p-p) (burst signal), 75Ω [NTSC]
: 0.3V(p-p) (burst signal), 75Ω [PAL]

• VIDEO
1-line, BNC × 1 (* With the video board, separately available, installed)
Composite video signal : 1V(p-p), 75Ω (negative sync)

• Y, P_B/B-Y, P_R/R-Y
1-line, BNC × 3
Component (Y,B-Y,R-Y) signals
Y : 1V(p-p), 75Ω (negative sync or 3-value sync)
P_B/B-Y : 0.7V(p-p), 75Ω
P_R/R-Y : 0.7V(p-p), 75Ω

DTV-format signals
[480i (ITU-R BT. 601-4), 480p (SMPTE 293M)]
Y : 1V(p-p), 75Ω (negative sync)
P_B, P_R : 0.7V(p-p), 75Ω
[720p (SMPTE 296M), 1080i (SMPTE 274M)]
Y : 1V(p-p), 75Ω (3-value sync)
P_B, P_R : 0.7V(p-p), 75Ω

[RGB IN (RGB input)]

• RGB IN-1 (PC)
1-line, D-sub 3-row 15 pin × 1
Analog RGB signal
R : 0.7V(p-p), 75Ω
B : 0.7V(p-p), 75Ω
G : 0.7V(p-p), 75Ω
G on Sync : 1V(p-p), 75Ω (negative sync)
Sync signal : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)
* Some connected devices may not correspond to composite sync (Cs) or G on sync signal.

• RGB IN-2
1-line, BNC × 5
Analog RGB signal
R : 0.7V(p-p), 75Ω
B : 0.7V(p-p), 75Ω
G : 0.7V(p-p), 75Ω
G on sync : 1V(p-p), 75Ω (negative sync)

Horizontal sync/composite sync signal (H/Cs)
H : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)
Cs : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)
Vertical sync signal (V)
V : 1V(p-p) to 5V(p-p), high impedance (positive/negative polarity)
* Some connected devices may not correspond to composite sync (Cs) or G on sync signal.

[RGB OUT (RGB OUTPUT)]

• RGB OUT
1-line, D-sub 3-row 15-pin × 1
Analog RGB signal
R : 0.7V(p-p), 75Ω
B : 0.7V(p-p), 75Ω
G : 0.7V(p-p), 75Ω
G on sync : 1V(p-p), 75Ω (negative sync)
Horizontal sync/composite sync signal (H/Cs)
H : TTL level (Polarity : Same for input)
Cs : TTL level (Polarity : Same for input)
Vertical sync signal (V)
V : TTL level (Polarity : Same for input)

[CONTROL]

• RS-232C : 1-line, D-sub 9-pin × 1
* RS-232C-interface specified control terminal for controlling this projector with a personal computer.

• REMOTE : 1-line, mini-jack × 1

General

• Power requirements	AC 220 V~240 V, 50 Hz/60 Hz
• Power consumption	12 A (at 220V)
• Allowable operation temperature	+ 5°C to + 40°C (41°F to 104°F)
• Allowable relative humidity	90% or less (no condensation)
• Allowable storage temperature	– 5°C to + 60°C (23°F to 140°F)
• Maximum outside dimensions	Approx. (W)687 mm × (H)420 mm × (D)793 mm ($27\text{-}^{1}/_{16}$″ × $16\text{-}^{9}/_{16}$″ × $31\text{-}^{1}/_{14}$″) (excluding protruding parts)
• Weight	Approx. 70.0kg (154 lbs.)
• Accessories	(Refer to page 5.)

** Design and specifications are subject to change without notice.*
** D-ILA devices are manufactured with a very high-precision technology, allowing 99.99% of the pixels to be effective. Only 0.01% or less of the pixels are missing or always on.*
** For easy understanding, pictures and illustrations are shown by being emphasized, omitted or composed, and may be more or less different from actual products.*
**TRADEMARKS*
IBM ,IBM PC, and VGA are registered trademarks of International Business Machines Corporation. Macintosh is registered trademarks of Apple Computer, Inc.
VESA is a trademark of the non-profit organization Video Electronics Standard Association.
All other product names mentioned herein are used for identification purposes only, and may be the trademarks or registered trademarks of their respective companies.

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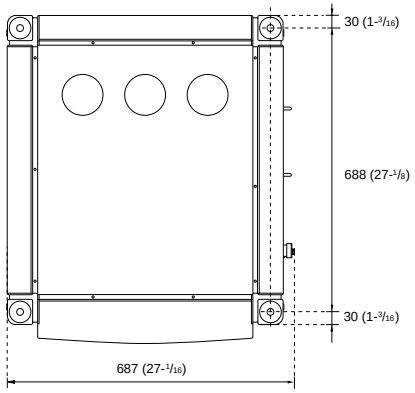
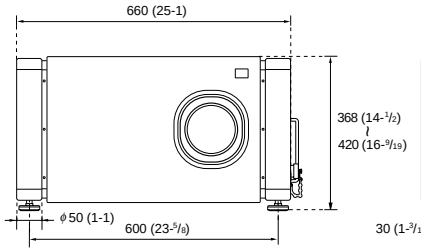
Outside dimensions

■ **Top**

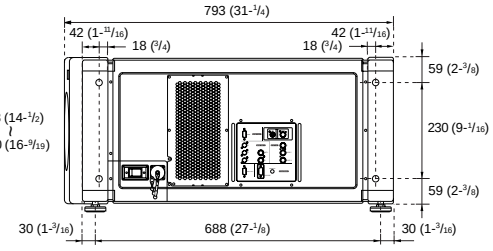
Unit: mm (inch)



■ **Front**



■ **Side**



DTV-format signals

* The following are DTV-format signals that can be input.

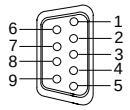
DTV-Formats	480i	480p	720p	1080i
Signal Standard	ITU-R BT. 601-4	SMPTE 293M	SMPTE 296M	SMPTE 274M
Scanning Line / Frame	525	525	750	1125
Effective Samples x Scanning Lines	720 x 485	720 x 483	1280 x 720	1920 x 1080
Samples / Total Line	858	858	1650	2200
Field Frequency (Hz)	59.94	59.94	60/59.94	60/59.94
Line Frequency (Hz)	15734	31468.5	45000/44955	33750/33716.25
Interlace Ratio	0.5	1	1	0.5

Pin assignment (Specifications for terminals)

■ **Y/C terminal**

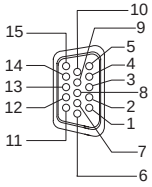
Pin number	Signal name
1	GND (Y)
2	GND (C)
3	Y
4	C

■ **RS-232C terminal**



Pin number	Signal name	Pin number	Signal name
1	N/C	6	N/C
2	RD	7	N/C
3	TD	8	N/C
4	N/C	9	N/C
5	GND		

■ **COMPUTER IN-1 (PC) / COMPUTER OUT Terminal**



Pin number	Signal name	Pin number	Signal name
1	Red	9	N/C
2	Green	10	GND (SYNC)
3	Blue	11	GND
4	N/C	12	N/C
5	N/C	13	H.SYNC
6	GND (Red)	14	V.SYNC
7	GND (Green)	15	N/C
8	GND (Blue)		

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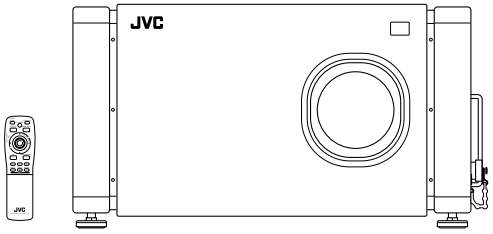
DLA-M4000LE D-ILA SUPER PROJECTOR

JVC

D-ILA™ SUPER PROJECTOR

DLA-M4000LE

INSTRUCTIONS



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VICTOR COMPANY OF JAPAN, LIMITED

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No.51666

DLA-M4000LU
DLA-M4000LE

Thank you for purchasing this projector. Before using it, read and follow all instructions carefully to take full advantage of the projector?s capabilities.

SAFETY PRECAUTIONS

IMPORTANT INFORMATION

WARNING :
TO PREVENT FIRE OR SHOCK HAZARDS, DO NOT EXPOSE THIS APPLIANCE TO RAIN OR MOISTURE.

WARNING :
THIS APPARATUS MUST BE EARTHED.

CAUTION :
To reduce the risk of electric shock, do not remove cover.
Refer servicing to qualified service personnel.

MACHINE NOISE INFORMATION (Germany only)
Changes Machine Noise Information Ordinance 3. GSGV, January 18, 1991: The sound pressure level at the operator position is equal or less than 70 dB(A) according to ISO 7779.

About burning-in of the D-ILA device

Do not allow the same still picture to be projected for a long time or an abnormally bright video picture to be projected. Do not project video images with high-intensity or high-contrast on a screen. The video image could be burned in to the D-ILA device.
Use special care when projecting video games or computer program images. There is no problem with ordinary video-cassette playback images.

WARNING

This is a Class A product. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

IMPORTANT SAFEGUARDS

Electrical energy can perform many useful functions. This unit has been engineered and manufactured to assure your personal safety. But **IMPROPER USE CAN RESULT IN POTENTIAL ELECTRICAL SHOCK OR FIRE HAZARD**. In order not to defeat the safeguards incorporated into this product, observe the following basic rules for its installation, use and service. Please read these "Important Safeguards" carefully before use.

– All the safety and operating instructions should be read before the product is operated.

– The safety and operating instructions should be retained for future reference.

– All warnings on the product and in the operating instructions should be adhered to.

– All operating instructions should be followed.

– Unplug this product from the wall outlet before cleaning. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning.

– Do not use attachments not recommended by the product manufacturer as they may be hazardous.

– Do not use this product near water. Do not use immediately after moving from a low temperature to high temperature, as this causes condensation, which may result in fire, electric shock, or other hazards.

– Do not place this product on an unstable cart, stand, or table. The product may fall, causing serious injury to a child or adult, and serious damage to the product. The product should be mounted according to the manufacturer's instructions, and should use a mount recommended by the manufacturer.

– When the product is used on a cart, care should be taken to avoid quick stops, excessive force, and uneven surfaces which may cause the product and cart to overturn, damaging equipment or causing possible injury to the operator.

– Slots and openings in the cabinet are provided for ventilation. These ensure reliable operation of the product and protect it from overheating. These openings must not be blocked or covered. (The openings should never be blocked by placing the product on bed, sofa, rug, or similar surface. It should not be placed in a built-in installation such as a bookcase or rack unless proper ventilation is provided and the manufacturer's instructions have been adhered to.)

For proper ventilation, separate the product from other equipment, which may prevent ventilation and keep distance more than 60 cm.

SAFETY PRECAUTIONS (Cont.)

– This product should be operated only with the type of power source indicated on the label. If you are not sure of the type of power supply to your home, consult your product dealer or local power company.

– This product is equipped with a three-wire plug. This plug will fit only into a grounded power outlet. If you are unable to insert the plug into the outlet, contact your electrician to install the proper outlet. Do not defeat the safety purpose of the grounded plug.

– Power-supply cords should be routed so that they are not likely to be walked on or pinched by items placed upon or against them. Pay particular attention to cords at doors, plugs, receptacles, and the point where they exit from the product.

– For added protection of this product during a lightning storm, or when it is left unattended and unused for long periods of time, unplug it from the wall outlet and disconnect the cable system. This will prevent damage to the product due to lightning and power line surges.

– Do not overload wall outlets, extension cords, or convenience receptacles on other equipment as this can result in a risk of fire or electric shock.

– Never push objects of any kind into this product through openings as they may touch dangerous voltage points or short out parts that could result in a fire or electric shock. Never spill liquid of any kind on the product.

– Do not attempt to service this product yourself as opening or removing covers may expose you to dangerous voltages and other hazards. Refer all service to qualified service personnel.

– Unplug this product from the wall outlet and refer service to qualified service personnel under the following conditions:

a) When the power supply cord or plug is damaged.
b) If liquid has been spilled, or objects have fallen on the product.
c) If the product has been exposed to rain or water.
d) If the product does not operate normally by following the operating instructions. Adjust only those controls that are covered by the Operation Manual, as an improper adjustment of controls may result in damage and will often require extensive work by a qualified technician to restore the product to normal operation.
e) If the product has been dropped or damaged in any way.
f) When the product exhibits a distinct change in performance – this indicates a need for service.

– When replacement parts are required, be sure the service technician has used replacement parts specified by the manufacturer or with same characteristics as the original part. Unauthorized substitutions may result in fire, electric shock, or other hazards.

– Upon completion of any service or repairs to this product, ask the service technician to perform safety checks to determine that the product is in proper operating condition.

– The product should be placed more than one foot away from heat sources such as radiators, heat registers, stoves, and other products (including amplifiers) that produce heat.

– When connecting other products such as VCR's, and personal computers, you should turn off the power of this product for protection against electric shock.

– Do not place combustibles behind the cooling fan. For example, cloth, paper, matches, aerosol cans or gas lighters that present special hazards when over heated.

– Do not look into the projection lens while the illumination lamp is turned on. Exposure of your eyes to the strong light can result in impaired eyesight.

– Do not look into the inside of this unit through vents (ventilation holes), etc. Do not look at the illumination lamp directly by opening the cabinet while the illumination lamp is turned on. The illumination lamp also contains ultraviolet rays and the light is so powerful that your eyesight can be impaired.

– Xenon gas is enclosed with high pressure inside the light-source lamp (lamp unit) of this projector. If you drop or impart a shock to the lamp, or discard it as is, there is the possibility of explosion, leading to personal injury. Use special care when handling the lamp. For any unclear points, consult your product dealer.

– Use only the accessory cord designed for this product to prevent shock.

The power supply voltage rating of this product is AC 200 V~ 240 V, the power cord attached conforms to the following power supply voltage. Use only the power cord designated by our dealer to ensure Safety and EMC.

When it is used by other power supply voltage, power cable must be changed.

Consult your product dealer.

*DO NOT allow any unqualified person to install the unit.
Be sure to ask your dealer to install the unit (eg. attaching it to the ceiling) since special technical knowledge and skills are required for installation.
If installation is performed by an unqualified person, it may cause personal injury or electrical shock.

POWER CONNECTION
(United Kingdom only)

WARNING
Do not cut off the main plug from this equipment.
If the plug fitted is not suitable for the power points in your home or the cable is too short to reach a power point, then obtain an appropriate safety approved extension lead or adapter or consult your dealer.

If nonetheless the mains plug is cut off, remove the fuse and dispose of the plug immediately, to avoid a possible shock hazard by inadvertent connection to the main supply.

If a new main plug has to be fitted, then follow the instruction given below:

WARNING:
THIS APPARATUS MUST BE EARTHED.

IMPORTANT:
The wires in the mains lead on this product are coloured in accordance with the following cord:

Green and Yellow	: Earth
Blue	: Neutral
Brown	: Live

As these colours may not correspond with the coloured making identifying the terminals in your plug, proceed as follows:

The wire which is coloured green-and-yellow must be connected to the terminal which is marked ⏚ with the letter E or the safety earth or coloured green or green-and-yellow.

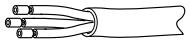
The wire which is coloured blue must be connected to the terminal which is marked with the letter N or coloured black.

The wire which is coloured brown must be connected to the terminal which is marked with the letter L or coloured red.

When replacing the fuse, be sure to use only a correctly rated approved type, re-fit the fuse cover.

IF IN DOUBT —— CONSULT A COMPETENT ELECTRICIAN.

Information on the power cord plug
The power cord of this projector does not have a wall outlet plug attached. We recomend you to select and attach a plug which matches your wall outlet.
Use a plug rated 250V/20A.
The wires ends of the power cord are covered for protection. Remove the covers before attaching the plug to the power cord.



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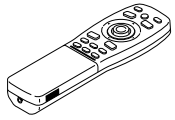
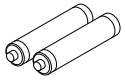
Accessories

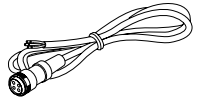
The following accessories are included with this projector. Check for them; if any item is missing, please contact your dealer.



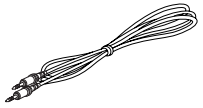
Remote control unit (RM-M4000G)



AA/R6-size dry cell battery (×2) (for checking operation)



Power code [approx. 3.35 m]



Remote control cable (approx. 15 m)

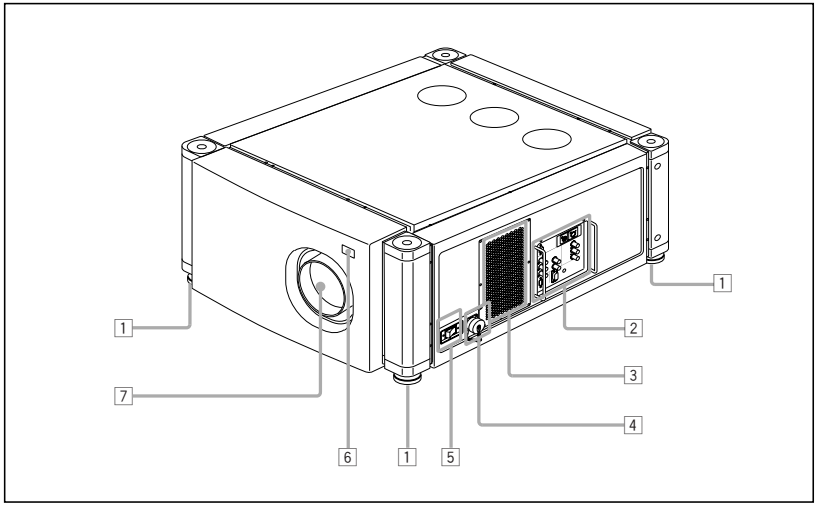
Memo

In addition to the above accessories, an operator manual (this book) and warrantee sheet are included. If any is missing, also contact your dealer.

DLA-M4000LU
DLA-M4000LE

Controls and Features

Front Side / Top Surface / Right Side



1 **Adjustable foot**
It is set at the shortest position when shipped from the factory. Turn the foot to make the projector level. Adjustment can be made in the range of ±4° from the vertical and ±5° from the horizontal.

2 **Connector panel**
For details, refer to “Connector Panel” on page 10.

3 **Air intake area (filter)**
Air is taken in through this area to cool the light-source lamp. If this area is blocked or if something that obstructs taking in or exhausting air is placed around the projector, heat may build up inside and could cause a fire. For details, refer to “Precautions for Installation” on page 14.

CAUTIONS

- Be careful as paper, cloth or soft cushion could be drawn in if placed nearby. Do not block the intake area, or heat may build up and could cause a fire.
- Clean the filter periodically. For details, refer to “Cleaning and Replacing the Filter” on page 59.
  Deposition of dirt on the filter works to reduce the cooling effect, causing heat to build up inside, which could cause a fire or malfunction.

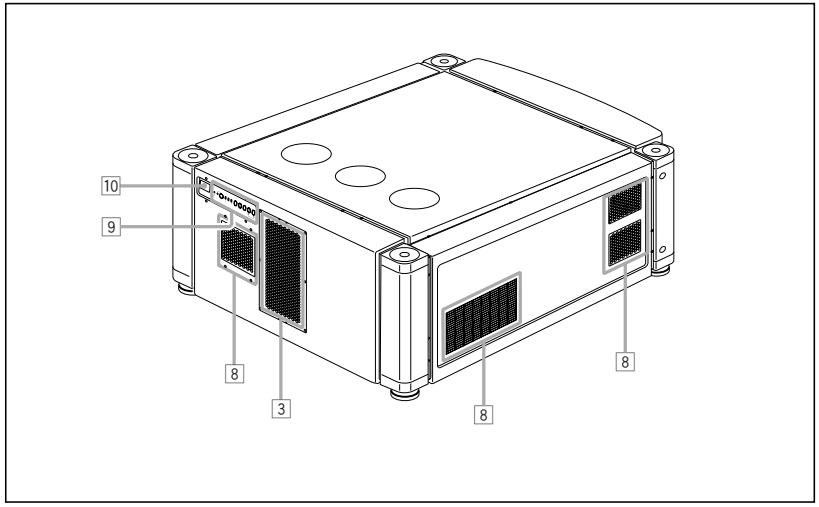
4 **AC IN (power input) terminal**
This is the power input terminal where the supplied power cord is connected. For details, refer to page 23.

5 **MAIN POWER switch**
This is the main power switch. When it is turned on, the projector goes into stand-by state, and the STAND BY indicator on the control panel comes on.
ON [I]: The main power turns on.
OFF [O]: The main power turns off.

6 **Remote sensor**
When operating with the remote control, aim it toward this sensor. An additional remote sensor is provided on the back of the projector. The effective operating distance of the remote control is 10 m from each of the sensors. The effective operating range of angles is 50° left and right, and 15° up and down.

7 **Lens mount**
Attach a projection lens separately sold to this mount.
GL-M4023SZ 3 : 1~7 : 1 zoom lens
GL-M4015S 1.5 : 1 fixed-focus lens
For information on attaching the lens, consult the dealer or service center who performed the installation and adjustments of your projector.

Left-hand side / Back Side



8 **Exhaust vents**
Vents for cooling fans through which warm air comes out.

9 **Control panel**
For details, refer to “Control Panel” (page 8 and 9).

10 **Remote sensor**
When operating with the remote control, aim it toward this sensor. An additional remote sensor is provided on the front of the projector. The effective operating distance of the remote control is 10 m from each of the sensors. The effective operating range of angles is 50° left and right, and 15° up and down.

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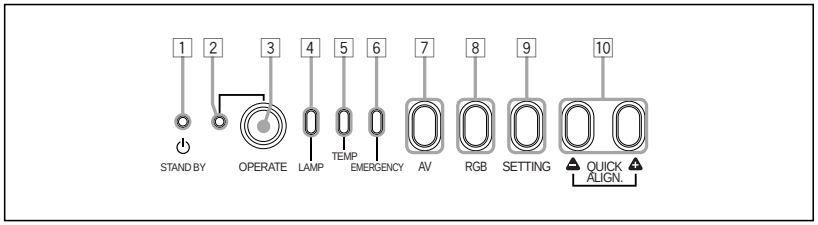
Control Panel



1 **STAND BY Indicator**
ON : When in stand-by mode.
Blinking : When in cool-down mode.

CAUTION

- The cool-down mode continues for about 20 seconds, during which projection cannot be started again. After the cooling-down period, the projector goes into stand-by mode, but the cooling fans will continue to run for about 10 minutes more.
- The purpose of the cool-down mode is to prevent inner parts from being deformed or broken by heat from the heated lamp as well as to prolong the life of the lamp. Do not turn off the main power switch while in the cool-down mode. Also, do not block any of exhaust openings while in cool-down mode.

2 **OPERATE indicator**
ON: When the projector is in operation (projecting)

3 **OPERATE button**
When the projector is in the stand-by mode, press this button for one or more seconds, and the main power switch is turned on, causing the OPERATE indicator to light. Press it again, and the projector goes into the cool-down mode, then stand-by mode.

Memo

While in the cool-down mode:
If you press the OPERATE button, the projector is not tuned on.

4 **Lamp indicator**
ON : After the light-source lamp has been used for more than approx. 900 hours.
Blinking : Replace the lamp.(Ask the dealer where you purchased your projector to replace the lamp.)

5 **TEMP indicator**
ON: The temperature inside the projector has abnormally risen.

Note

- While the TEMP indicator is on (during abnormal temperature), the power is automatically cut off, and an emergency mode is shown (with the EMERGENCY indicator blinking).

6 **EMERGENCY indicator**
Blinking: Something abnormal has occurred with the projector.

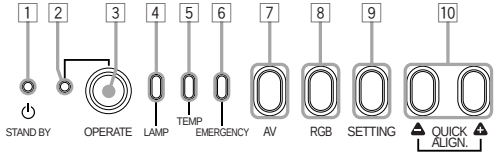
Memo

About the emergency mode:
The emergency mode is shown when the following anomalies have occurred with the projector (the EMERGENCY indicator blinks). In the emergency mode, projection is automatically interrupted and the cooling fans operate for about 20 seconds.
- **When the filter is clogged.**
- **When the light-source lamp has suddenly gone off.**
- **When the fans have stopped.**
- **When the temperature inside has risen abnormally high.**

CAUTION

- **When an emergency mode is shown:**
After the cooling fans have stopped, turn off the main power switch and unplug the power cord from the wall outlet.
Check that the filter covers are correctly installed. Then, plug in the power cord again and try operating the projector.
If it goes into an emergency mode again, after the cooling fans have stopped, turn off the main power switch, unplug the power cord, and call your dealer for repair.

Control Panel (Cont.)



7 **AV button**
Use this button to select a device such as a video deck connected to the EXT. IN terminal of the projector. Each time you press the button, the device selected changes as follows:

* *

* Y/C and VIDEO can be used only when a video board separately sold has been installed.

8 **RGB button**
Use this button to select a device connected to the RGB -1 or -2 terminals. Each time you press the button, the selection changes as follows:

9 **SETTING button**
Use this button to call up the setting menu. For details, refer to “Making Basic Settings” on page 30.

10 **QUICK ALIGN. button**
While a menu screen is shown, use this button to adjust the values for the item selected. When no menu is shown, the quick alignment function works.
- **When a menu is shown**
  ▲ button: The value for the selected item increases.
  ▼ button: The value for the selected item decreases.
- **When no menu is shown**
  Press the ▲ button and ▼ button at the same time: QUICK ALIGNMENT is displayed on the screen and the quick alignment function works (TRACKING, PHASE, H. POS. and V. POS. are automatically adjusted). When the adjustment is finished, the display goes off automatically.

Memo

The quick alignment function :
- Works for computer input (RGB- 1 and - 2 input terminals) signals.
- Does not work for video input (EXT. IN input terminal) signals.

CAUTION

- Automatic adjustment with the quick alignment function should be done on a bright still-picture screen. This function may not work correctly on a dark screen or motion-picture screen. If adjustment with this function is not satisfactory, adjust TRACKING, PHASE, H. POS. and V. POS. manually (see pages 30, 36 and 37).

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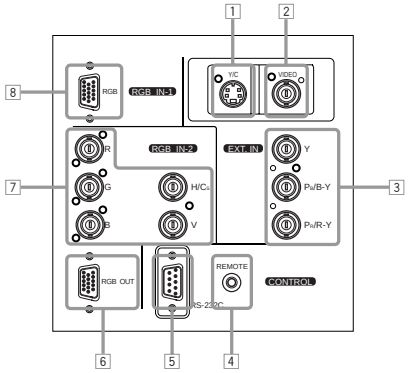
DLA-M4000LU
DLA-M4000LE

Connector Panel



1 **Y/C (S video) input terminal (Mini DIN 4 pin)**
Connect this terminal to the S video output terminal of a video deck, etc.
* This terminal can be used if a video board (PK-G1101D) sold separately has been installed. The terminal was not provided when the projector was shipped from the factory.

2 **VIDEO (composite video) input terminal (BNC)**
Connect this terminal to the composite video output terminal of a video deck, etc.
* This terminal can be used if a video board (PK-G1101D) sold separately has been installed. The terminal was not provided when the projector was shipped from the factory.

3 **Y, P_B/B-Y, P_R/R-Y input terminals (BNC)**
These are input terminals for component (Y, B-Y, R-Y) signals or DTV-format (Y, P_B, P_R) signals.
Device with component signal output terminals, such as for NTSC and DTV-format, can be connected.
* For details about DTV-format signals (480i, 480p, 720p, 1080i) compatible with this unit, refer to page 66.

4 **REMOTE terminal (mini jack)**
This terminal is used to directly connect the remote control to the projector. Use the remote control cable supplied. An infrared remote control extension unit can also be connected to the jack.

5 **RS-232C terminal (D-sub 9 pin)**
This is a RS-232C interface-specified terminal. This projector can be controlled by a computer connected externally.

6 **RGB OUT (RGB output) terminal (D-sub 3-row 15 pin)**
The computer input signal projected on the screen is output. A display unit can be used by connecting it to this terminal.

7 **RGB IN (RGB input) -2 terminal (BNC)**
These are input terminals for analog RGB signals, vertical sync (V) signals, and horizontal sync (H) signals / composite signals(Cs). Devices which have analog RGB signal output terminals can be connected.
*** Input of external sync signals is automatically detected.**
Detection of H/V signals or Cs signals causes automatic switch to external sync. The priority order is H/V > Cs.

CAUTION

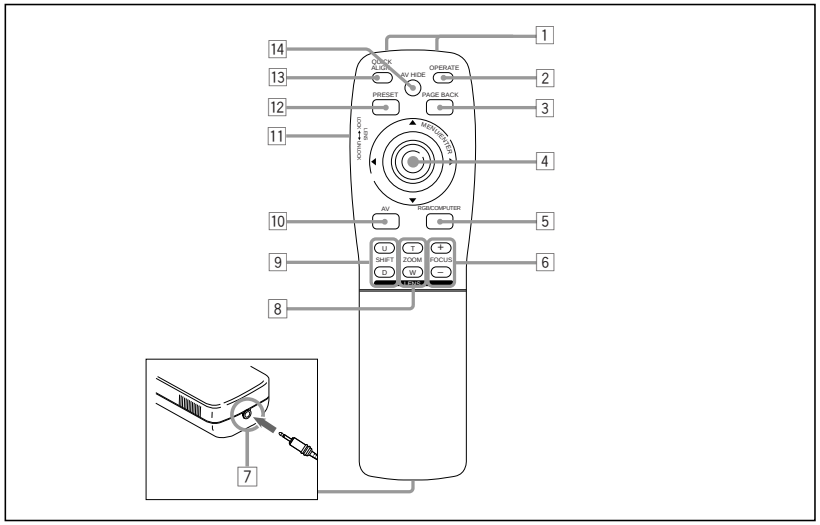
- When computer-related signals are input, the uppermost edge of the screen may appear bowing if the sync signal input is composite sync (Cs) or G on sync signal. In that case, use separate sync signals for vertical sync (V) and horizontal sync (H).

8 **RGB IN (RGB input) -1 terminal (D-sub 3- row 15 pin)**
This is an input terminal (PC) dedicated for computer signals (RGB video signals and sync signals).
Connect the display output terminal of the computer to this terminal. When a Macintosh or PC-9801/9802 series computer is to be connected, use a suitable conversion adapter separately available.

CAUTION

- When computer-related signals are input, the uppermost edge of the screen may appear bowing if the sync signal input is composite sync (Cs) or G on sync signal. In that case, use separate sync signals for vertical sync (V) and horizontal sync (H).

Remote Control Unit



1 **Remote control's signal transmitter**

2 **OPERATE button**
To turn on or off the power, press this button for one or more seconds.
* About 30 seconds after the power has turned on, video image will appear on the screen.

3 **PAGE BACK button**
While no menu is displayed, pressing this button causes a direct channel to be displayed.

Memo

Direct channel display:
A direct channel display allows you to switch between channels which have lines and sources registered. For details, refer to "Switching channels using a direct channel" (page 52).

4 **MENU/ENTER button**
Use this button to display the main menu, or while the main menu is displayed, use the button to select an item to adjust or make adjustment. While the main menu is displayed, pressing MENU/ENTER displays a details setting (submenu) if the selected item has a details setting.
For how to operate the buttons, see page 13.

5 **RGB / COMPUTER button**
Use this button to select the devices connected to the projector's RGB IN (RGB input) -1 and -2 input terminals. Each time you press the button, the selection changes as follows:

6 **FOCUS (+/–) button**
Use these buttons to adjust the focus of the projected picture.
+: The focus point becomes more distant.
–: The focus point becomes nearer.

7 **REMOTE terminal**
Use a remote control cable to connect between the projector and the remote control. For details, refer to "Connecting to Devices which Control the Projector" on page 22.

8 **ZOOM (T/W) button**
Use these buttons to increase or decrease the screen size. (They can only be used when a zoom lens is used.)
T: The screen size decreases.
W: The screen size increases.

9 **SHIFT (U/D) button**
Use these buttons to adjust the height of the projection screen when projectors are used in a stack configuration.
U: Moves the screen upwards.
D: Moves the screen downwards.

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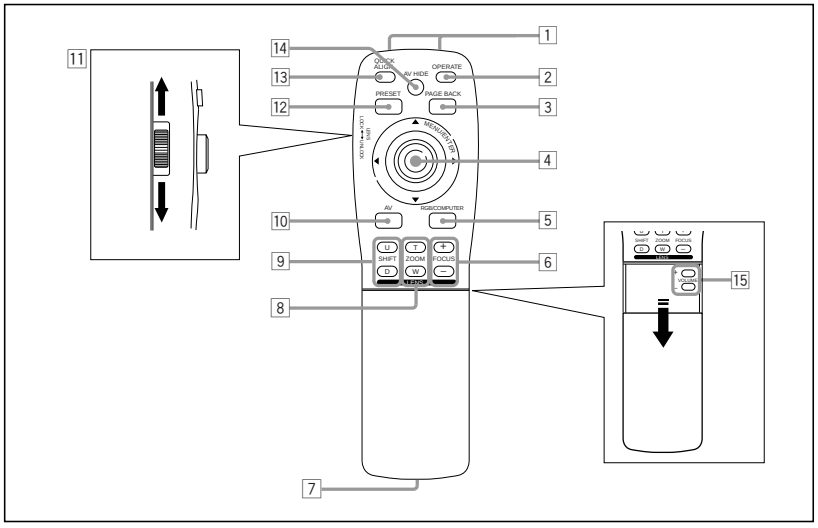
Remote Control Unit



10 **AV button**
Use this button to select the devices such as a video connected to the projector's AV IN (EXT. input) terminal. Each time you press the button, the selection changes as follows:

Y/C* → VIDEO* → YPBPR

* Y/C and VIDEO can be used only when a video board separately sold has been installed.

11 **LENS LOCK ↔ UNLOCK switch**
With this switch set at the LOCK position, adjustment operations (focus, zoom or shift) with the remote control are disabled, preventing adjustment contents from being inadvertently changed while the remote control is being used. When adjustment is needed, set the switch to the UNLOCK position.

12 **PRESET button**
While making adjustment on the main or setting menu, use this button to reset the setting of the selected item to the factory-set value. This button works only for numerical settings and does not work for switching ON to OFF.

13 **QUICK ALIGN. (Quick Alignment) button**
Use this button to automatically adjust TRACKING, PHASE, H. POS. and V. POS. of the projected video. During the automatic adjustment, QUICK ALIGNMENT appears on the screen, and disappears after it is finished.

Memo

Quick alignment function:
Does not work for video input (EXT. IN input terminal) signals.
Works only for computer-related (RGB-1 and-2 input terminals) signals.

CAUTION

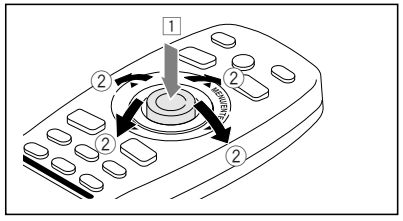
- Automatic adjustment with the quick alignment function should be done on a bright still-picture screen. This function may not work correctly on a dark screen or motion-picture screen. If adjustment with this function is not satisfactory, adjust TRACKING, PHASE, H. POS. and V. POS. manually (see pages 30, 36 and 37).

14 **AV HIDE button**
Use this button to turn off the video image temporarily. Pressing it again makes the video image to resume.

15 **Not used with this projector**

MENU / ENTER (Menu Operation) Button

The remote control supplied with this projector has only one button to navigate through the menus. Pressing the menu operation button too strongly may cause an incorrect operation. So, before you use the button in an actual situation, have some practice to make yourself familiar with using the button.



1 **When using the MENU/ENTER button as a menu operation button :**
Press the button down straight when displaying the main menu. While the main menu is displayed, if the selected item has a details setting (submenu), pressing the button will cause the submenu to be displayed.

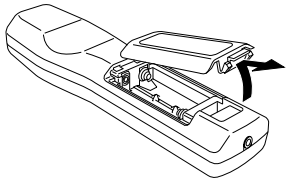
2 **When using the MENU/ENTER button as a cursor moving button:**
Press the button toward one of the ▲/▼/◄/► marks. While the main menu is displayed, use the button to select an item to adjust or make adjustment.

Installing Batteries

Install batteries in the remote control. If the remote control has started to work erratically, replace the batteries.

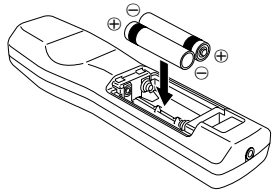
1 Open the back cover.

Open the back cover in the direction of the arrow.



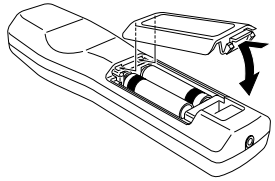
2 Install the batteries.

Place the two batteries (AA/R6-size) supplied in the remote control as illustrated below.



3 Close the back cover.

First fit the claw on the back cover into the case, then close the back cover in the direction of the arrow.



Precautions for using batteries

If batteries are used incorrectly, they may crack or leak liquid. This could cause a fire, burn, malfunction, or staining or damaging the surrounding.
Beware of the following:

- Do not mix new and old batteries.
- Do not mix different types of batteries as they differ in characteristics.
- Place batteries so they match the polarities indicated: (+) to (+) and (–) to (–).
- Be sure to put the minus (–) end in first to avoid short-circuiting.
- Use only designated batteries.
- Remove the batteries if not used for a prolonged period of time.
- When the batteries are exhausted, replace them immediately. Otherwise, liquid could leak, or malfunction could occur due to leaked liquids. If the leaked liquid contacts the skin, wipe it off with a cloth, otherwise the skin could become rough.
- Do not put batteries into fire or try to recharge them.
- Batteries run for six months to one year in normal use. But the batteries supplied are for confirming operation and may not run that long. When the remote control starts failing to work properly, replace the batteries with new ones.

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DLA-M4000LU
DLA-M4000LE

Installing the Projector

Precautions for Installation

CAUTION

Do not install the projector in the following places :

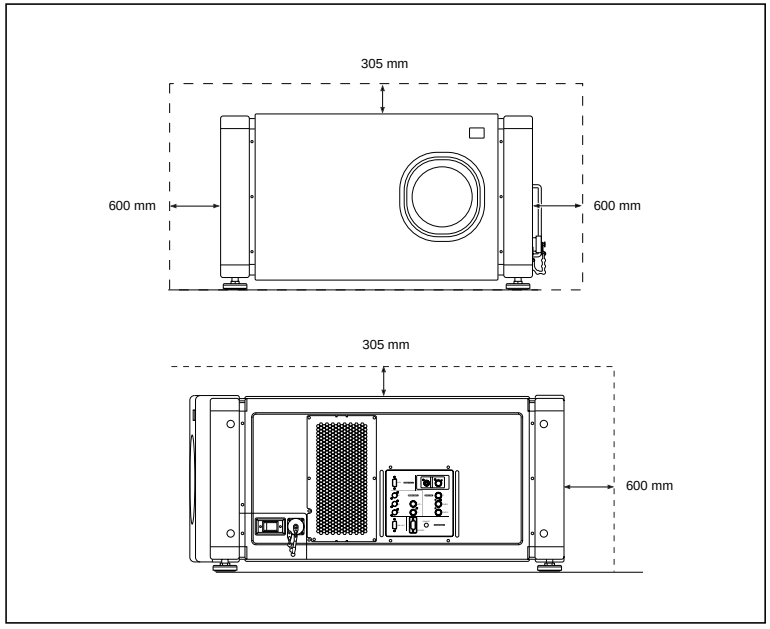
- There is much water, humidity or dust.
- The projector may be subjected to oil smoke or cigarette smoke.
- On a soft surface such as a carpet or cushion.
- The projector may be subjected to direct sunlight.
- Temperature is high or humidity is low.

Allowable operation temperature range: + 5°C to + 40°C
Allowable relative humidity range: 90% or less (no condensation)
Allowable storage temperature range: –5°C to +60°C

■ **When installing the projector, observe the followings:**

- **Do not use the projector placed on its side.**
  Avoid using the projector placed on its side. This could cause a malfunction.
- **Use the projector within the installed angle.**
  Avoid using the projector inclined ±5° or more right-to-left or left-to-right. This could cause color variation or harm the lamp life.
- **Do not block the exhaust vents.**
  Do not use a cover which encloses the projector air-tight or blocks the exhaust vents. Allow sufficient space around the projector. When the projector is enclosed in a space of the following dimensions, use an air conditioner so the temperature inside becomes equal to the outside temperature.

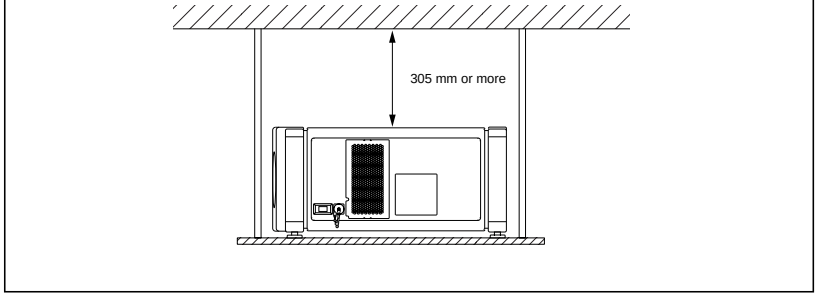
Allowable minimum space required



Precautions for Installation (Cont.)

■ **Observe the following points when installing the projector by hanging it from the ceiling**

- To prevent falling or overturning, it is recommended that the projector be fixed to its stand with bolts.
- When mounting the projector to the ceiling, first install a special shelf and then set the projector on it securely. For safety and maintenance purposes, a suitable facility is necessary to easily lift and lower the projector from the shelf for maintenance access.

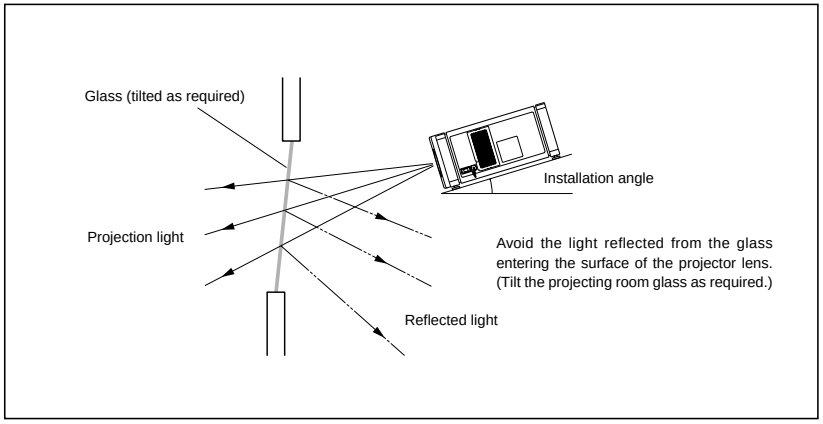


Relationship relative to Glass Surface

■ **Light energy decreases as it passes a glass. So, no more than one glass should be used in the projecting room.**

■ **Avoid using panes of glass as much as possible.**

■ **Pay attention to the angle of the glass and the installed angle of the projector so that the light emitted from the projector does not come back into the lens after reflection.**


Glass (tilted as required)
Installation angle
Projection light
Avoid the light reflected from the glass entering the surface of the projector lens. (Tilt the projecting room glass as required.)
Reflected light

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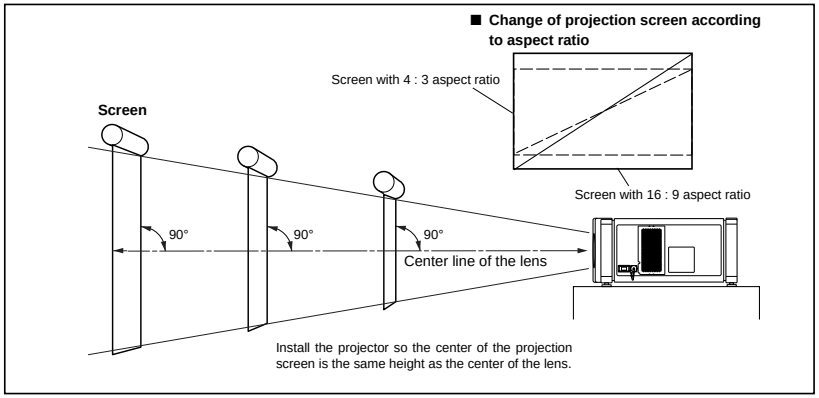
Lens Shift Function


■ Change of projection screen according to aspect ratio
Screen with 4 : 3 aspect ratio
Screen
Screen with 16 : 9 aspect ratio
90°
90°
90°
Center line of the lens
Install the projector so the center of the projection screen is the same height as the center of the lens.

The separately sold lenses used on the projector have a lens shift function. With the lens used, you can adjust the projected image vertically using the setting menu or the remote control's SHIFT button U or D.
When using the projectors in a stack configuration (stacked one over another), make adjustment so that the picture of one projector overlays exactly that of another using the lens shift function.
For detailed adjustment procedures, refer to "Operating the Setting Menu" (page 30) and "Controls and Features" (page 11).
For maximum amount of shift, refer to "Maximum Amount of Shift" (page 17).
(When the lens needs to be adjusted in horizontal angles, consult your dealer or service center.)

Note

• Some of the lenses (except GL-M4023SZ and GL-M4015S) to be introduced in the future may not feature the lens shift function.

Memo

Stack configuration:
Up to four projectors can be stacked and used together (stack configuration).
Using two or more projectors together, high image brightness can be attained. This allows you to project sufficiently bright image in a fairly large auditorium or relatively bright place without using a heavy-duty projector.

CAUTION

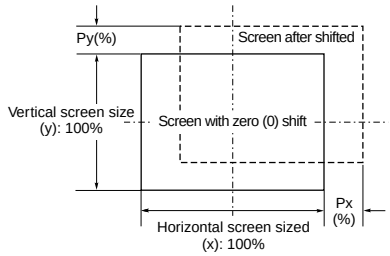
To prevent damage to the projector during shipment, a shift center lock pin was used to fix the lens mechanism when the projector was shipped out the factory. If you implement "SHIFT LENS" on the setting menu and the lens does not either move up or down, the shift center lock pin may not have been removed. Consult your dealer or service center.

CAUTIONS and NOTES

- When installing the screen, use a 4 : 3 aspect ratio picture.
  (A 16 : 9 aspect ratio picture is projected based on the width of the range in which a 4 : 3 aspect ratio picture is projected.)
- The diagonal length of a 16 : 9 aspect ratio picture is about 91.8% that of a 4 : 3 aspect ratio picture. This value is a guide and should be used as a reference.
- When projecting at the maximum projection distance, we recommend that the projector be used with the zoom on the Tele (T).
- If sunlight or lamp light strikes the projection screen directly, the picture becomes whitish and dim. Be sure to use a curtain, etc. to shield the light.
- Trapezoidal distortion may not be corrected.
  Adjust the projector within the range of angle adjustment (up/down adjustment angle: +4°; horizontal adjustment angle: ±5°) so that it is set up level.

Lens Shift Function (Cont.)

Maximum amount of shift
The maximum amount of vertical shift is restricted by the amount of horizontal shift made.
The amount of shift is defined as follows:
With the screen width taken as 1, horizontal shift is defined as a ratio (%) of the screen width, while with the screen height taken as 1, vertical shift is defined as a ratio (%) of the screen height.



Relational table for maximum shift amounts (aspect ratio 4 : 3)

Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)
0.000	31.968	10.000	28.102	20.000	23.272	30.000	17.268	40.000	9.739
1.000	31.621	11.000	27.666	21.000	22.729	31.000	16.592	41.000	8.881
2.000	31.265	12.000	27.219	22.000	22.173	32.000	15.900	42.000	8.000
3.000	30.901	13.000	26.762	23.000	21.606	33.000	15.192	43.000	7.096
4.000	30.528	14.000	26.295	24.000	21.026	34.000	14.467	44.000	6.167
5.000	30.146	15.000	25.818	25.000	20.434	35.000	13.725	45.000	5.213
6.000	29.756	16.000	25.331	26.000	19.828	36.000	12.966	46.000	4.231
7.000	29.356	17.000	24.833	27.000	19.209	37.000	12.189	47.000	3.221
8.000	28.948	18.000	24.324	28.000	18.577	38.000	11.392	48.000	2.180
9.000	28.530	19.000	23.803	29.000	17.930	39.000	10.576	49.000	1.107
								50.000	0.000

Relational table for maximum shift amounts (aspect ratio 16 : 9)

Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)	Py(%)	Px(%)
0.000	31.968	10.000	26.609	20.000	19.421	30.000	9.747
1.000	31.503	11.000	25.980	21.000	18.581	31.000	8.599
2.000	31.234	12.000	25.333	22.000	17.716	32.000	7.410
3.000	31.528	13.000	24.666	23.000	16.824	33.000	6.178
4.000	30.018	14.000	23.980	24.000	15.905	34.000	4.900
5.000	29.491	15.000	23.274	25.000	14.958	35.000	3.573
6.000	28.949	16.000	22.548	26.000	13.981	36.000	2.193
7.000	28.389	17.000	21.800	27.000	12.973	37.000	0.756
8.000	27.813	18.000	21.030	28.000	11.933	37.509	0.001
9.000	27.220	19.000	20.237	29.000	10.858		

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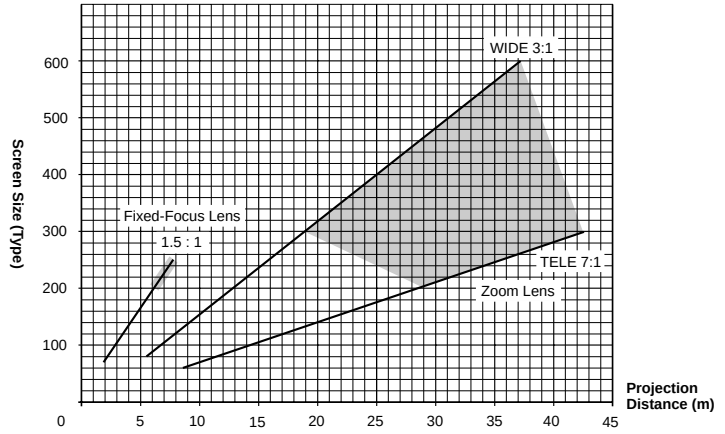
DLA-M4000LU
DLA-M4000LE

Projection Distances and Screen Sizes

Lenses that can be used are a 3 : 1 ~ 7 : 1 zoom lens and a 1.5 : 1 fixed-focus lens. With a zoom lens used, you have a wider latitude in selecting projection distance and installation space than with a fixed lens.
For how to install the lens, consult the dealer who installed and adjusted your projector or service center.

Relationship of screen width vs. projection distance



In the shaded areas in the above graph, the projected image may be partially distorted or missed out depending on the distance between the projector and the screen. To project an image with no image distortion or missing, we recommend you to use the projector in the areas defined with solid lines in the graph.

Adjustable range of the lens

Lens	Screen Size (Type)	Projection Distance (m)	Remarks
GL-M4023SZ zoom lens	80 – 300 (80 – 600)	5.06 – 18.65 (5.06 – 37.19)	3:1 wide
	60 – 200 (60 – 300)	8.65 – 28.56 (8.65 – 42.79)	7:1 tele
GL-M4015S fixed-focus lens	69 – 208 (65 – 250)	2.09 – 6.50 (1.97 – 7.83)	————

The numbers in ( ) represent the minimum to maximum adjustable range.

Connecting to Various Devices

*** Before connection, be sure to turn off the projector and connected devices.**
*** Read the manual which comes with each device thoroughly.**

Signals that Can Be Input to the Projector

The following signals can be input to the projector:

■ Video signals

(1) Response to color systems

Input terminal \ Color system	NTSC 480i	NTSC4.43	PAL	SECAM
VIDEO*3	○	○	○	○
Y/C*3	○	○*1	○	- - - - -
Y, P_B/B-Y, P_R/R-Y	○*2	○*2	○*2	○*2
G, B, R, H/C_S, V	○*2	○*2	○*2	○*2

*1 : Responds if Y/C output is available.
*2 : Signifies that component signals ("Y, P_B, P_R" / " Y, B-Y, R-Y" / "G, B, R, H/C_S, V") conform to the signal timing (synchronization and video period) of each color system. The color systems are used for convenience only.
*3 : To use these terminals, a video board (separately sold) is required.

(2) Response to double density (*1), high-vision signals

Input terminal	NTSC*2	PAL*3	High-vision signal
Y, P_B/B-Y, P_R/R-Y	○	○	○
G, B, R, H/C_S, V	○	○	○

*1 : Signals whose density of scanning lines/field is twice as high.
*2 : Responds to signals whose horizontal scanning frequency is 31.5 kHz. NTSC can be made twice as dense by a line doubler (separately available: recommended article). Also, possible to respond to fully-specified, decoded 525P progressive signals.
*3 : Responds to signals whose horizontal scanning frequency is 33.5 kHz. PAL can be made twice as dense by a line doubler (separately available: recommended article).

■ Computer signals

• Signals with the following resolutions can be input to the input terminal of RGB IN-1 (PC) or RGB IN-2 (G, B, R, H/Cs, V). (The following signals are preset.)

Screen resolution (standard name)	Horizontal frequency	Vertical frequency	Scanning method
640 × 400 (PC-9801)	24.8kHz	56.4Hz	Non-interlace
640 × 350 (VGA1)	31.5kHz	70.1Hz	Non-interlace
640 × 480 (VGA3)	31.5kHz	59.9Hz	Non-interlace
640 × 480 (Macintosh 13")	35.0kHz	66.7Hz	Non-interlace
640 × 480 (VGA VESA)	37.5kHz	75.0Hz	Non-interlace
800 × 600 (SVGA1)	37.9kHz	60.3Hz	Non-interlace
800 × 600 (SVGA2)	48.1kHz	72.2Hz	Non-interlace
832 × 624 (Macintosh16")	49.7kHz	74.6Hz	Non-interlace
1024 × 768 (XGA1)	48.4kHz	60.0Hz	Non-interlace
1024 × 768 (XGA2)	56.5kHz	70.1Hz	Non-interlace
1024 × 768 (Macintosh 19")	60.2kHz	74.9Hz	Non-interlace
1152 × 870 (Macintosh 21")	68.7kHz	75.0Hz	Non-interlace
1280 × 1024 (SXGA1)	64.0kHz	60.0Hz	Non-interlace
1280 × 1024 (SXGA2)	70.8kHz	67.0Hz	Non-interlace
1360 × 1024 (SXGA3: Mac Board)	80.0kHz	75.1Hz	Non-interlace

Notes
• Interlace signals are not handled.
• Some signals other than listed above can be displayed. But they require adjustment. Even some of the signals listed above may require adjustment depending on the video board used.
• When a signal other than listed above is input, the screen could be partially erased or an unneeded fold-over screen could appear.
• Even signals in the frequency range that can be input may not be displayed normally depending on the type of the signal.
• Composite sync.(Cs) and G on sync. signals can not handled depending on the devices connected.

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